WIN! Amiga 2000 Treasure Hunt p. 62

September 1988
U.S.A. $3.95
Canada $4.50
UK £2.50
An IDGC/I Publication

AMIGA WORLD

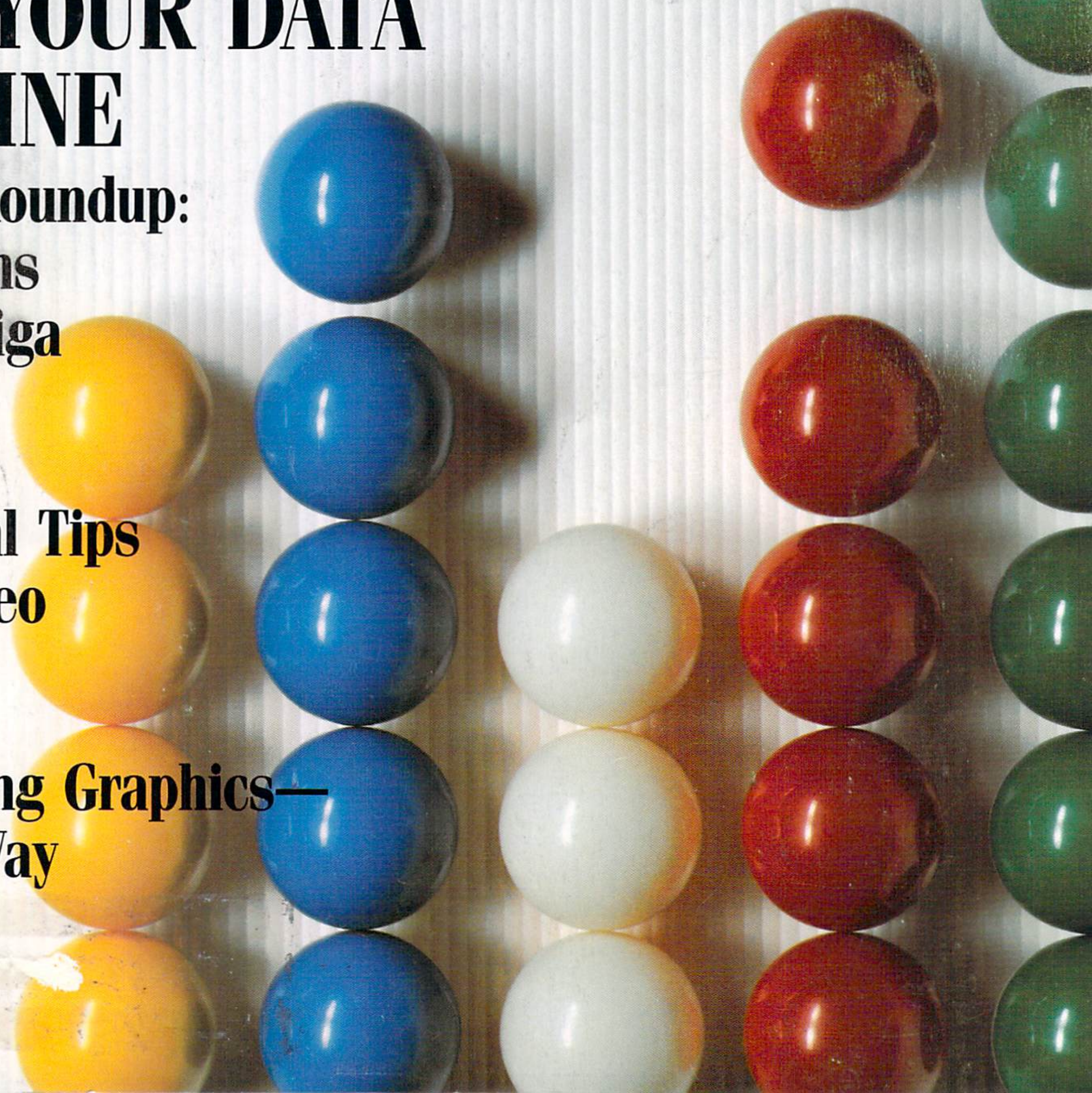
MOVE YOUR DATA INTO LINE

Database Roundup: 12 Programs For the Amiga

Plus!

Professional Tips For the Video Amateur

Programming Graphics— The Easy Way



0 74470 65948 09

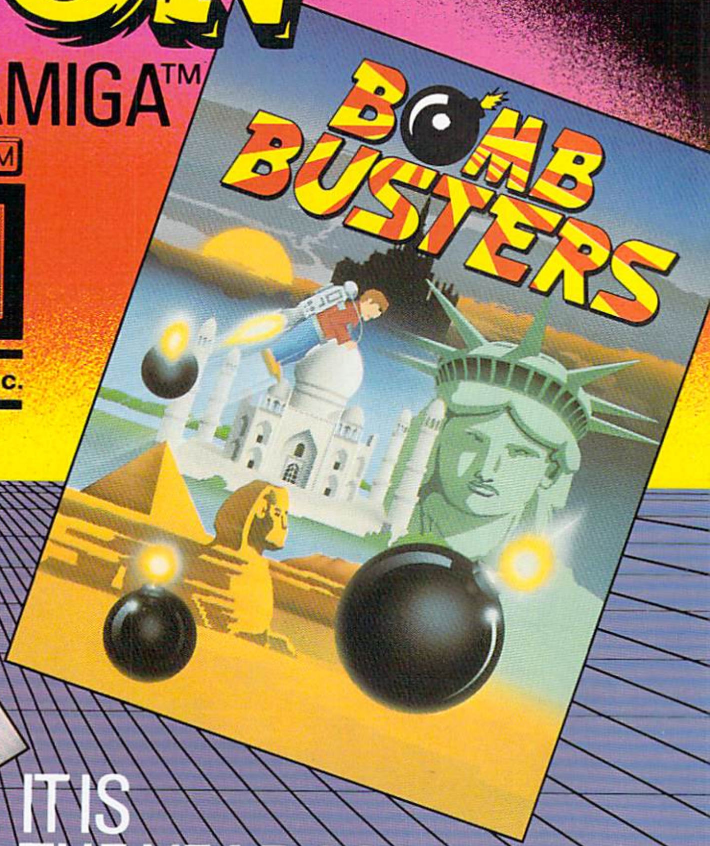
ARCADE ACTION

FOR YOUR AMIGA™

FROM

ReadySoft Inc.





AFTER CENTURIES

of oppressive rule by the Tyrans, Lord Mantrex and his Star Warriors rebelled and attempted to win the freedom of their planet. After years of bitter fighting, the remnants of Lord Matrex's forces have gathered to face the final assault by the Tyran Deathbots.

You, as Lord Mantrex, must defeat the Tyrans and win back the freedom of Ganymed.

IT IS THE YEAR 2001

During a recent wave of terrorism, bombs were planted throughout the famous buildings of the world. You, as leader of the crack bomb squad, Bomb Busters, have been summoned to defuse the bombs. Equipped with only a jet pack, you must fight your way through 100 levels on two disks and save the world.

But hurry . . . time is running out!

Dealer Inquiries Invited

Circle 24 on Reader Service card.

Please rush me:

☐ **BOMB BUSTERS**
@ \$29.95 US (\$34.95 CDN)

☐ **GANYMED**
@ \$29.95 US (\$34.95 CDN)

Payment by:

☐ Check ☐ Money Order ☐ VISA ☐ Mastercard

Card #: ____________________

___ / ___ Expiry Date ____________________ Signature

Please add **\$4.00** for shipping and handling. Ontario residents please add 8% P.S.T. No C.O.D. please:

NAME: ____________________

CITY/TOWN: ____________________

STATE: ____________________ ZIP: ____________________

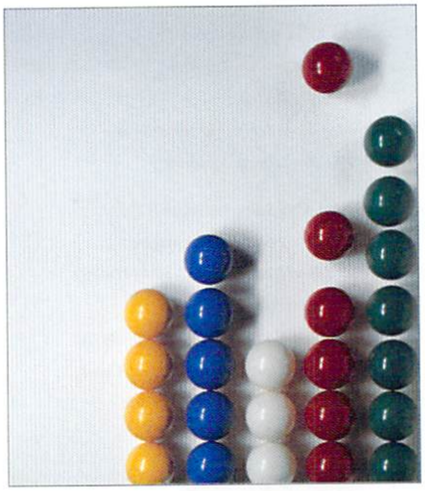
ReadySoft Inc.

Ready Soft Inc.,
P.O. Box 1222,
Lewiston, N.Y.
14092

PHONE ORDERS: (416) 731-4175 Please have credit card number ready

VOLUME 4, NUMBER 9 SEPTEMBER 1988

CONTENTS



No, those are not *rows of ducks on the cover, but we do have some good advice this month on getting your ducks in a row when it comes to data management. Check out* AmigaWorld's *first "Database Roundup" if you're looking for the right program—large or small—to help you organize your data more efficiently. And be sure to get in on the last leg of* AmigaWorld's *Summer '88 Treasure Hunt and take your chance at the super Grand Prize drawing.*

FEATURES

ARTICLES

COLUMNS

DEPARTMENTS

WIN AN AMIGA 2000!
Plus a Getaway Weekend for 2. This is it—we're at the third and final part of ***AmigaWorld's*** **Summer '88 Treasure Hunt**. Your last set of clues is waiting on **page 62**. If you've missed one or both of the previous legs, check out the "Contest Rules" to find out how to order back issues.

COVER PHOTOGRAPH BY PAUL AVIS

AmigaWorld (ISSN 0883-2390) is an independent journal not connected with Commodore Business Machines, Inc. *AmigaWorld* is published monthly by IDG Communications/Peterborough, Inc., 80 Elm St., Peterborough, NH 03458. U.S. subscription rate is $24.97, one year; 38.00, two years; $53.00, three years. Canada $34.97 (U.S. funds), one year only. Mexico $32.97, Foreign Surface $47.97, Foreign Airmail $82.97 (U.S. funds drawn on U.S. bank). All rates are one-year only. Second class postage paid at Peterborough, NH, and at additional mailing offices. Phone: 603-924-9471.

Postmaster: Send address changes to *AmigaWorld*, Subscription Services, PO Box 58804, Boulder, CO 80322-8804. Nationally distributed by International Circulation Distributors. *AmigaWorld* makes every effort to assure the accuracy of articles, listings and circuits published in the magazine. *AmigaWorld* assumes no responsibility for damages due to errors or omissions.


CINEMAWARE
PRESENTS
ROCKET RANGER
Only YOU can stop the Interplanetary Spread of Jet-Propelled NAZI FACISM!
A Master Race from Outer Space threatens the Fate of the Free World!
SEE THE BEAUTIFUL YOUNG DAUGHTER OF A FAMOUS SCIENTIST— HELD CAPTIVE BY A GANG OF GODLESS GOOSESTEPPERS!
Actual Amiga Screens

ZEITGEIST

Conversation with a virus creator.

RETURNING FROM A meeting last week, I got a message saying that someone had called claiming to be the Byte Bandit. He would call back in exactly one hour and he would talk to no one except me. OK. I get calls from all sorts of people. At the top of the appointed hour, he called back.

He said that he had seen something in *AmigaWorld* about his virus, and he wanted to give us a temporary solution (see Notepad p. 10). It was a strange conversation for a number of reasons, and it has some strange implications. For one thing, I wasn't sure if this person really was the Byte Bandit, if his solution would really work, if he would hang up at any second, or, if he was the Byte Bandit, would his solution end up doing more harm than good? I decided that the more information I could get the better, and I might even learn something of value about viruses. We started talking about the reasons behind his creating a virus in the first place.

What was his thinking?

He said it was partly for fun. He said it was partly to see if he could do it. He said he can't stand A500 owners. He said he was angry at Commodore for coming out with the 500 and 2000 because it was a way for Commodore to cheat the original Amiga 1000 designers out of royalties.

He said that at first it was a challenge for him to write a virus that was Install immune, but admits that it is not really a very clever piece of code. "It was never intended to get out. It was a mistake really. I wrote it for myself to see if I could do it and infected some of my own disks by accident. A friend borrowed an infected disk and it was out. I was really amazed at how fast it spread. I had no idea. Plus, I know people who export stuff to Europe. . .Oh well."

He doesn't really think that it is a true virus either, because it has a "trap door" (in this case, a way around the "crash," but in classic hacker parlance, a "trap door" is a way for the original designers of a system to bypass any and all security).

It would have been nice to convince him he should use his skills (and it didn't take long to determine that he knew the Amiga inside and out) creating virus killers or games or just about anything other than viruses, but I'm not an evangelist or a psychologist, and I'm not vain enough to think that one phone conversation with me is going to change his thinking. I also got the impression that he wasn't going to be sitting at his computer all day working on dozens of new and more devious viruses. I think this was a one-shot deal. He likes the Amiga for what it is (even with its problems) and hopes that viruses aren't going to hurt future sales of the Amiga.

Now, there isn't any way to condone this person's actions, but it is worth noting that perhaps it was not completely intentional. The creator of this virus may not be an evil vampire, sleeping by day, dreaming of ways to terrorize by night, but more of a Dr. Frankenstein whose creation gets out of control and starts terrorizing the local villagers. Yes, the result is the same. Either way, we local villagers get the short end of the stick. A lot of people, including many here at the *AmigaWorld* offices, are all set to sharpen the stakes, light the torches and head out for the castle. I'm not convinced that this will do much good at this point. The Byte Bandit isn't the monster, the virus is, and it has come out of the lab and into the streets. We should be draping garlic on our windows, bolting the doors, and systematically destroying the viruses we encounter.

A curious question occurred to me while going over all this. Have the Byte Bandit and the other virus creators broken any laws? They don't sell their viruses. They aren't stealing data. Is it vandalism? Perhaps it is equivalent to leaving poisoned candy bars on a park bench. I'm not sure.

So, what do we do about the mad scientists out there sewing together new creatures? The death penalty is a bit extreme, and doing nothing isn't much of a deterrent either. Finding the creator of a virus is difficult, and in most cases, impossible.

If you are curious about testing your own programming skills by writing a virus of your own, how about working on a virus killer instead. Tougher challenge, better result.

On the constructive side, *AmigaWorld* is going to start compiling information about viruses and virus killers. As soon as we can, we'll publish an article about virus killers. If you have heard about a good virus killer (or have written one yourself), then let us know about it. If you have encountered a new strain of virus, then let us know about that, too. All we can do is provide information. Eventually, we will try to set up a virus information BBS (or something like it) for the exchange of programs, ideas, information, whatever. If you have other ideas or suggestions, then let me know. Send everything to *AmigaWorld* Virus Killers, 80 Elm St., Peterborough, NH 03458 (include your name, address, and phone number). If we use your material, your name will be printed in the magazine. Who knows, someday you might be mentioned in the same breath with Pasteur and Salk.

Guy Wright

REPARTEE

Comments, complaints, and concerns

from AmigaWorld *readers.*

WIRE WARRIOR

IN RECENT ISSUES of *AmigaWorld*, I've been reading complaints about the difficulty of telecommunicating [see Zeitgeist, April '88, p. 6 and Repartee, June '88, p. 10]. I enjoy telecommunicating, and I don't consider myself a hacker at all!

I use a Mitac 2400BD modem and Micro Systems Software's Online! terminal program. I currently belong to CompuServe, PeopleLink, and various local boards. I use the boards approximately three hours a week, and I keep my telecommunicating bill down to $20 a month. I was disappointed to see four letters in June's Repartee complaining about telecommunications, and none supporting it. Are all you people out there spoiled to the point that you can't handle a little typing (or thinking)? Are you the same people who complain about using the CLI?

Kenneth J. Howland
Framingham, MA

ANOTHER LEMON

FRED KUHLMAN'S letter in your May '88 issue sounded familiar ["Fat Agnus on the Loose," Repartee, May '88, p. 10]. I've been trying to get my 500 fixed since Christmas. My Fat Agnus chip burned out after six weeks of light use. I took the little monstrosity to a repair shop and waited *four months* for Commodore to send a replacement chip. The shop had ten other Amigas hanging around waiting for the same chip. Ten! After waiting all that time, my replacement chip burned out after only six or eight hours of use.

The store where I purchased my Amiga has stopped carrying Commodore equipment because they can never get through to Commodore, or get any help from them. The shop where I'm taking it this time to get it fixed (I hope) is planning on dropping Commodore for the same reasons.

I spent over $1500 on my Amiga setup. I have much better uses for that cash than off-white plastic sculpture. The Amiga has turned me right off home computers, and if I can unload it and recover some of my loss, I think I'll stay away from them all from now on.

If it takes them months to come through with another replacement chip, or if the new one bites the dust, or if the shop decides they can't fix this turkey, I think it will be time to talk to some consumer groups about Commodore.

John E. Payne
Franklin Lakes, NJ

ALTERED STATES

IN RESPONSE TO Fred Little's attack on Timothy Leary ["Bronx Cheers for Dr. Tim," Repartee, July '88, p. 8], it is the drug laws that are responsible for more deaths than all drugs combined.

Dr. Leary's work with LSD, when it was legal, was responsible for reducing the recidivism rate of prisoners in the Massachusetts penal system by some 85%. Leary's current position in advocating altered states via computer devices shows a most enlightened approach. Dr. Leary may just be entering his "prime"!

May the Peace of the Cosmic Abide With You. I am

Master of the Unheard of
Brooklyn, NY

BRAIN DRAIN IN U.S.

REGARDING *AmigaWorld*'s Summer '88 Treasure Hunt, I suggest that next time you do a contest, make it a little more worth the reader's while. In the three months that I would be wasting on your infantile little game, I could get a full-time job, earn enough money to buy an Amiga 2000 with hard drive, 2400-baud modem, IBM Bridgeboard, and a library of software, plus go on a weekend trip with my girlfriend to Hawaii, and have enough money left over to make three month's worth of payments on a new Ferrari. This contest is a cheap trick to sell a few more copies of *AmigaWorld*.

I believe you would make more money if you made the Treasure Hunt easier to win. As it is, very few people will even bother to play the game. If you made the game open to people who are on a sub-genius level, I think you would sell more copies, if that's what you're trying to do. Clue #4 is a good example of what I mean [see Part One of the Treasure Hunt, July '88, p. 61]. If you had made the clues more clear, I think you would sell a lot more copies. No one will win this game unless he knows all the answers to all the questions, and I doubt if there is a *single mind in the entire U.S.* (or a single library, for that matter) that contains all that information. [italics ours]

Next time, make it a little more worth the reader's time. Otherwise, you'll end up with a hidden Amiga 2000 with no one to find it, and a pair of expired plane tickets. That may still happen if I am speaking for the majority of readers.

Adam Kortepeter
Skillman, NJ

Thanks, Adam, for your endorsement of our Treasure Hunt. We hope your fellow AmigaWorld *readers will be inspired to take up the challenge and go further than Clue #4. By the way, we'll let you know how many correct solutions we receive at the end of the contest.*
—Editors

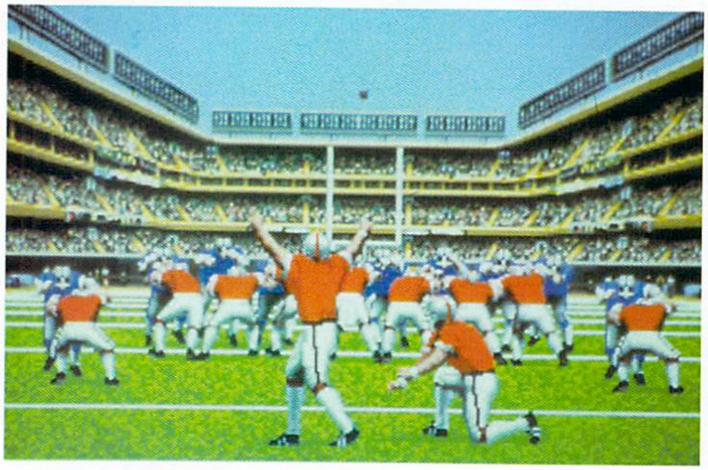
Send your letters to: Repartee, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. Letters may be edited for space and clarity. ■


GODZILLA MEETS DAN RATHER
YOU WANT LIVE ACTION, FAST MOTION, AND SPECIAL EFFECTS, AND YOU WANT IT ALL AT ONCE. INVISION™ GIVES IT TO YOU.
YOU'VE GOT IMAGINATION. AND NOW YOU'VE GOT SOMETHING IT CAN RACE WITH. YOU PRESS A KEY, MOVE THE MOUSE AND WATCH THE IMAGE HAPPEN. YOUR CREATIVE POWERS ARE GETTING A WORKOUT LIKE NEVER BEFORE. SOME LIVE ACTION HERE...SOME SPECIAL EFFECTS THERE. MIX IN SOME IMAGES AND YOU'VE GOT SOMETHING WILD AND WONDERFUL. IN VIVID COLOR. THIS IS INVISION—WORKING WITH YOU, YOUR AMIGA, VCR AND YOUR LIVE!™ VIDEO DIGITIZER TO CREATE ANY IMAGE YOU WANT. EVEN GODZILLA AND DAN RATHER. INVISION SOFTWARE FROM ELAN DESIGN. $129. ASK YOUR DEALER OR CALL US: (415) 621-8673.
INVISION™
Circle 210 on Reader Service card.
DEALER INQUIRIES WELCOME.
P.O. BOX 31725 SAN FRANCISCO, CA 94131
NEITHER DAN RATHER NOR GODZILLA ENDORSE THIS PRODUCT. AMIGA AND LIVE! ARE TRADEMARKS OF COMMODORE/AMIGA, INC. AND A-SQUARED SYSTEMS RESPECTIVELY.

NOTEPAD

Compiled by Linda Barrett

Game for the Challenge



Every-night football on the Amiga network.

FOR A FEW days this summer, Chicago became Funtown, USA. The Consumer Electronics Show was in town, chock full of new Amiga games.

Rainbird blasted off with **Starglider 2**. The seas are thick with missles, too, as **Carrier Command** puts you in control of a futuristic battle cruiser. Rainbird also premiered **Enlightenment**, an arcade game, **Black Lamp**, a medieval romp, and the **Universal Military Simulator**.

Interplay made chess a contact sport in **Battle Chess**, which lets the pieces act out their aggressions.

MicroIllusions' booth was bursting at the seams with the long-anticipated **Music-X, Photon Video: Cell Animator**, and **Transport Controller**, and several new games. **Craps Academy** gives you a list of buzz words so you can sound cool while you shoot. **Mainframe** gives you the job of destroying the crazed TriComplex III computer. In **Turbo**, you streak around in a race car avoiding and exploding obstacles.

Broderbund demonstrated the official version of **Star Wars** and its upcoming animation program, **Fantavision**.

Arcade-fans should enjoy Konami's **Contra** and **Rush N' Attack**, Capcom's **Street Fighter**, and Taito's **Bubble Bobble, Operation Wolf, Rastan, Renegade,** and **Sky Shark**.

Sierra unfolded new chapters in its Quest series: **King's Quest 4: The Perils of Rosella, Police Quest 2: The Vengeance**, and **Space Quest 2: The Pirates of Pestulon. Manhunter: New York** casts you as a reluctant agent for hideous aliens. In **Leisure Suit Larry 2**, the lounge lizard is still after his dream girl.

In Cinemaware's **Lords of the Rising Sun**, you try to become the supreme ruler, the Shogun, in 12th-century Japan. Closer to home, **TV Sports Football** features individual and team statistics and plenty of action on the field.

In Psygnosis' **Aquaventura**, you jet through a dangerous underwater landscape, while **Psyclapse** places you in a futuristic spacecraft.

Epyx added to the pot with simulations ranging from **Street Sports Football** to **Final Assault. The Games: Summer Edition** continues the quest for the gold.

Virgin Games tried to tempt board-game enthusiasts with adaptations of **Risk, Scruples**, and **Scrabble**.

DataSoft's **Cosmic Relief** casts you as one of five detectives who must find a crazed scientist.

Paragon's **Twilight Ransom** pits you against the underworld of Liberty City.

If CES was any indication, you had better limber up your joystick. The fun has just begun.

—Marshal M. Rosenthal

The Creator Is the Killer

A MAN IDENTIFYING himself as the Byte Bandit recently called *AmigaWorld* and revealed an escape hatch in his infamous Byte Bandit virus (see "Quarantine the Bandit," p. 14, in the June '88 issue of *AmigaWorld*). Although his virus appears to crash your Amiga, the machine is *not* really dead, and you can salvage its RAM.

When your system locks up, press the five keys at the bottom of your keyboard in order from the left. The exact sequence is:

LEFT-ALT, LEFT-AMIGA, SPACE BAR, RIGHT-AMIGA, RIGHT-ALT

This should bring your computer back to life for awhile. Quickly save any work in progress, close up all your activities

and turn the computer off. Reboot your system with a virus-killer program, destroy the virus on the infected disk, and then *turn your computer back off again* (otherwise the Byte Bandit virus will infect the virus-killer disk).

The five-key sequence will restore your Amiga every time the Byte Bandit virus strikes, but you should destroy the virus as soon as possible and notify whoever gave you the infected disk. Unlike the Swiss Cracking Association (SCA) virus, which you can eradicate by running INSTALL on the infected disk, the Byte Bandit virus rewrites the INSTALL command, so it is INSTALL-immune. You must destroy it with a virus-*killer* program, not merely a fancy INSTALL program. You will find several commercial programs and many virus killers in the public domain that should work.

Remember, this should work only on the Byte Bandit virus. As we do not have any infected disks at the offices, we could not test the cure ourselves. It may not even work at all, but anything that might save a day's work from destruction is worth a try. *—GSW*

The Honor of the BADGE

THE BAY AREA Amiga Developers GroupE (BADGE) wants you to show off for its second annual Killer Demo Contest. You can enter only one demo, so decide if your expertise lies in the custom programs or tool-based demos (Anim) class. Your program should run under the 1.3 operating system from Workbench or the CLI on all Kickstart-supported processors. Demos should return all memory and not write to disk. All entries must be freely redistributable, as BADGE will send the best submissions to Fred Fish for his public-domain library. See Fred Fish disks 112–127 for last year's winners.

Before sending a disk, you need to submit a letter of intent by September 15, 1988. BADGE must receive entries by September 29, 1988. No entry fee is required, but a five-dollar donation will buy you a floppy disk of the three best demos and a list of all entries. Final judging will take place at the October 20, 1988 meeting of the Bay area Amiga Developers GroupE. Everyone present at the meeting will be eligible to vote. BADGE will award at least nine prizes (cash, hardware, and software), but the exact prizes and their corresponding categories have yet to be announced. For a complete list of prizes, technical qualifications, suggestions, and judging procedures, send a self-addressed stamped envelope to: BADGE Killer Demo Contest, c/o Randy Spencer, PO Box 4542, Berkeley, CA 94704, or call 415/222-7595 (voice) or 415/222-9416 (BBS). *—LJB*

June Bride

THE LONG DISPARATE worlds of computers and video were united this June at the grand opening of RGB Computer and Video Creations' new store in Palm Beach Gardens, FL. Known for its Deluxe Help software series, the company has branched into the retail and post-production video businesses.

Several company representatives were on hand to help RGB celebrate and to show their wares. C Ltd demonstrated its hard drives, along with a newly released 300-dots-per-inch laser scanner and printer. Hash Enterprises showed Animation:Apprentice 3.0 and the Animation:Multiplane digital compositor, a new program that lets you layer animations created by one or more programs into a single animation. Commodore liaisons discussed the new one-megabyte Fat Agnus coprocessor under development, as well as the 1.3 versions of Kickstart and Workbench. From the video side, VideoMedia displayed its V-LAN animation controller in a double demo with Panasonic's AG-7500 Super VHS video tape recorder.

In lieu of representatives, some companies let the products speak for themselves. From Mimetics came the AmiGen genlock and the Frame Buffer, which can grab a color freeze frame of live video and display 16.7 million colors. Sci-Tech also supplied a prototype of its Y/C Genlock. Computer System Associates (CSA) displayed the 68020 turbo board with Kickstart 1.3 in ROM. For three-dimensional fanatics, Haitex Resources sent a pair of X-Specs 3D glasses. To keep operations stable, version 3.0 of G.O.M.F. was on hand, trapping Guru Meditation errors.

RGB will add several Deluxe Help packages to their own software line, including one for AmigaDOS 1.3.

Behind the bustle of the retail store are the editing suites, with both Super VHS format and ¾-inch equipment. Via software developed by RGB Computer & Video Creations, an Amiga 2000 acts as an A/B roll editing controller for the post-production service. An Amiga 500 provides character and logo generation. One of the facility's unique features is the ability to transfer single-frame animations from Amiga software to videotape. You can send your compressed animation files by disk or modem. Send your files and questions to RGB Computer & Video Creations, 3944 Florida Blvd., Suite 102, Palm Beach Gardens, FL 33410, 407/622-0138 (BBS line, 407/622-7049).

—Wayland Strickland



Not for sale, but available for video editing.

HORS D'OEUVRES

Hints, tips, and techniques

from your fellow Amiga users.

BASIC Subroutine Names

WHEN PROGRAMMING IN Amiga Basic, all of my subroutine names clearly define the operation of that subroutine. For example:

CALCULATEDIVISIONSTANDINGS:
INPUTDIVISIONNUM:

Now all of my GOSUBs make sense. The only drawback I have encountered, especially in a long source, is listing by subroutine name. Typing things like "LISTCALCULATEWINLOSSRECORDS" gets very tedious with debugging and enhancing. My solution to this is to alphabetize the subroutines as I type them in and precede each group with its letter of the alphabet. Then, LIST C gets me as close as I need to be.

Phil Brewer
Sacramento, CA

Filenotes

I SEEM TO remember reading somewhere that if you use the CLI FILENOTE command on a file, it is there for life (unless you use COPY, in which case the comment is dropped) and can only be viewed from the CLI. Well, that ain't so. It turns out that these comments are also visible from the Workbench.

First, under the CLI: you can assign a comment to a file by using the FILENOTE command, which has this format:

FILENOTE FILE/A, COMMENT/A:

You should know what to use for FILE (note that the /A indicates that the parameter *must* be supplied). For COMMENT, use any text comment that you want. If the comment has spaces in it, then you must enclose the comment in quotes (e.g., "This is a test"). Now, to remove that comment, you have to supply double quotes (" ") for the COMMENT/A parameter. If you simply want to change the comment, just enter the command normally using your new comment (you need not erase the previous comment).

Second, under Workbench: this method will work with any file that is represented with an icon on the Workbench. If you select the icon and use the Workbench menu option Info, you will see assorted information displayed about the file. One of these happens to be a file comment. If you put a comment on a file under the CLI, then look at that file using its icon on the Workbench as I've described, you'll see the same comment in the comment box that you saw under the CLI. Of course, you can get rid of the comment or change it here as well, although it requires several steps. Whether you change or delete the comment from the Workbench, you *must* select the Save gadget at the bottom of the Info requester to save the updated information; otherwise, it will stay the same. A quick keyboard shortcut for clearing the comment box is to press and hold the right Amiga key and press the X key. If you want to erase the comment, do this, then select the Save gadget. When you go back into the CLI and use the LIST command, the comment will be gone.

Greg Epley
Lexington, NC

PC BASIC Programs On Amiga

MICROSOFT BASICA AS used on the IBM PC is very similar to Amiga Basic (also written by Microsoft), so it is often possible to run BASICA programs on the Amiga with little or no modification. The problem has been transferring the programs from 5.25-inch IBM disks to the 3.5-inch Amiga disks. With the PC Utilities on the 1.2 Extras disk, this has become much easier.

If you have a BASICA program on an MS-DOS disk, first save a copy in ASCII format on the MS-DOS disk. The BASICA command to accomplish this is SAVE "ProgName",A. Next, use the PC Utility copy program on the Extras disk to transfer the ASCII file to your Amiga disk. You can now load the file on the Amiga disk into Amiga Basic, edit it if necessary and run it.

Of course, you must have a 5.25-inch disk drive to read MS-DOS disks. Commodore's 1020 drive, sold for use with the Transformer, is ideal for the task.

Theodore V. Brown
Hyde Park, NY

More Workbench Space

HERE IS A simple tip to give you more room on your Workbench disk. The directory FONTS contains numerous font description files and directories. Most users will not need more than one or two fonts. Delete the unused files (that have a .font suffix) and the corresponding directory. Be sure to retain your default font. For those who have not altered the default font from the original disk, the default is topaz, so be sure to retain topaz.font and the directory SYS:FONTS/TOPAZ, as well as the contents of SYS:FONTS/TOPAZ. Deleting all but the topaz font information will return approximately 185 blocks, or 10% of the total disk space.

Steve Hyde
Hawthorne, CA

If you have an idea you'd like to share with our readers, send it to Hors d'oeuvres, AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458. If your idea gets published, you'll receive an* AmigaWorld *surprise gift.* ■



You Can't Buy Time.

You can't buy time, but you can save it if you have the right tools. WordPerfect Corporation's latest creation for the Amiga is WordPerfect Library, a collection of integrated programs to organize your appointments, notes and files. Whether you're a home manager or an office manager, Library was made for you.

Calendar keeps track of your daily schedule and will remind you of important appointments by sounding preset alarms. From your Calendar, you can print a daily list of appointments, notes, and things to do. Accomplishing is easier when you can chart your progress on paper, and Calendar lets you do just that.

At home, you'll want to use *Notebook* to organize important information. Addresses, phone numbers, recipes, home fix-it instructions, even decorating ideas can be easily sorted and accessed according to your instructions.

Notebook is every bit as practical in the business world. You can organize your telephone files in various ways: alphabetically, according to area code, or using any other factor you choose. Lists of clients and associates, too, are easily collected and categorized. All Notebook files are saved in WordPerfect format for easy transfer to WordPerfect documents.

Calculator, as you might guess, calculates. You can choose any of its financial, programming, and scientific functions. You might, for example, create a payment plan for a home or car loan, or calculate the future value of a savings bond. The scientific calculator can also help students, since logarithms, exponents, and trigonometry are among its functions.

Of course, Calculator is as valuable in the office as it is at home. You can access the Calculator without exiting your document, and then save your current state in Calculator. When you flip back to your document, your calculation remains intact for easy reference.

The list of Library's features goes on and on. *File Manager* helps you arrange, mark, edit, and print your files. *Program Editor*, with powerful features like hex edit and multiple block functions, lets you see and edit the codes behind your documents.

WordPerfect Library for the Amiga is now shipping. Save yourself some time by looking into it; you'll be glad you did. You can learn more about Library by contacting your local dealer or

WordPerfect
CORPORATION
1555 N. Technology Way · Orem, Utah, 84057 USA
Tel: (801) 225-5000 · Telex: 820618 · Fax: (801) 227-4477

Circle 64 on Reader Service card.

REVIEWS

EXCELLENCE!

Does it live up to its name?

AS THE SECOND heavy-weight word processor on the market, excellence! had time to learn from WordPerfect's (WordPerfect Corp.) deficiencies. It has a raft of professional features and a true "Amiga feel." With their Amiga-born champion, excellence!, Micro-Systems Software hopes to slay the giant, or at least put a dent in its armour.

Excellence! is so easy to learn and use that on the surface it does not appear to have the same power as its rival. A quick glance at the package tells you otherwise. Excellence! offers PostScript-printer support, up to eight print-and-display colors, automatic index and table of contents generation, IFF graphics support within documents, up to four text columns per page, mathematical operations on columns of numbers, multiple headers and footers, super- and subscripts, footnotes, math functions, a 70,000-word thesaurus with synonyms and antonyms, a 90,000-word spelling checker that monitors your document continuously or reads it all at once, a grammar checker, mail merge, programmable macro keys, full mouse and keyboard support, and more.

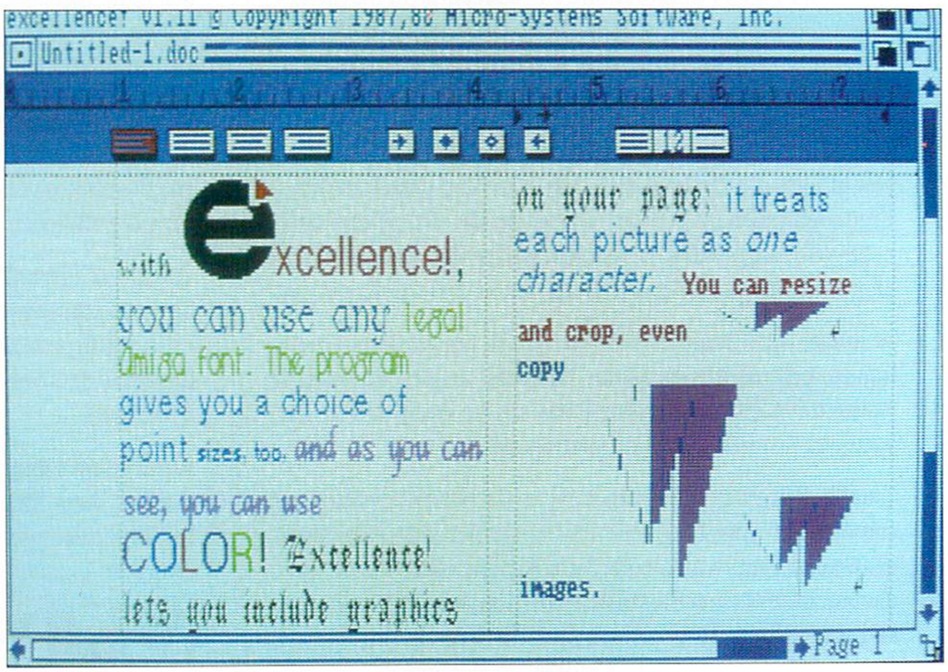
The manual is clear, well structured, and contains many illustrations. The on-disk example files help you understand the written instructions. Hard-disk owners will need help sifting through the 300-plus pages, because critical installation information is buried near the end. The documentation's remaining flaws are of omission; the index could be more extensive, and the Preview Page mode, among other things, is never described. From the manual it is a simple step to using the program.

Excellence! comes with two non-copy-protected disks, a Workbench disk and a program disk. The Workbench disk contains the hard-disk installation program that works perfectly, as long as you add the omitted ASSIGN statements described in the manual. If you are using the 512K version, excellence! boots up in two-color mode; sliders let you adjust the colors. The one-megabyte version boots in four-color mode. On startup, a scrolling message gives you updates and errata. Unfortunately, it takes about five minutes to display. You can disable the message, but you must read it once for the instructions. A Read_Me file would have been nicer.

The excellence! file requester system helps speed operations. You don't have to wait for the program to list an entire directory before you indicate a new drive or subdirectory to search. By default the requester lists only document files, but mouse clicks instruct it to display picture files or all files. If you see a file you want before the directory is finished, just double-click and that file loads. For an accurate record of your writings, each directory listing includes the date and time the file was last saved.

Neatness Counts

Before or after you commit your words to the screen, you can adjust the display and output. The page setup requestor lets you adjust the document's format—one to four columns, page size, pitch, header, footer, right and left margins, page numbering and more. You can adjust the default colors, choose between interlaced and non-interlaced modes, and specify whether the screen flashes as ►



This page uses only fonts provided on the excellence! disk; you can add others.

We Feel It Is Unfair Of The Major Software Companies To Avoid The AMIGA.

Publishing Partner Professional,™ designed to be better than the desktop publishing "standard."



Publishing Partner Professional	Pagemaker
We think desktop publishing should be enjoyable. Our user interface reflects this — have fun! And, if you need help, look in the manual, it even has an index!	There are books written on how to use it.
Your text will flow automatically around any irregular-shaped graphics giving a very professional look quickly.	A picture tells a thousand words — so who needs words?
Create crisp-looking, readable paragraphs. You can, with our auto-hyphenation, auto kerning, user definable kerning pairs, and auto-leading control all in increments down to 1/3600th of an inch!	They knew these functions are essential but leading only down to 1/2 a point?
Import those beautiful Amiga graphics from virtually any art program and print them in color or shades of gray. Or you can draw them as you go with our complete graphics toolbox.	Amiga graphics?
And, if you spell something wrong, the spell checking feature will find it for you, saving you time and perhaps embarrassment.	Hopefully you are a good speller.
Import from most all word processors including those with ASCII or IFF text formatting or have them running in the background.	It is vitally important to support word processors and they knew this.
We include drivers for virtually every printer, dot matrix or laser at no extra charge. So, now, you can create beautiful documents using the printer you already own.	They also realized that if the printer support is weak, why bother?
Need to change a word in one place or throughout the document? Our search and replace feature will make it quick and easy for you.	Do it right the first time.
It will always look great quickly, using our premade style sheets. Or, do it yourself with the tag and master page system.	It would sell better if they did.
You are very precise and you need flexibility, so our font point size range is from 1/50th of a point to 1.310 points in 1/50th of a point increments! And, we use scalable fonts so no jaggies!	If you are average, the range of 4 to 127 points one point at a time should suffice.
You can view your document in 50%, full width, full page, multiple page, actual size, or 200%, or set your own between 15 and 999%!	You can view your document in only the five different ways they have picked for you.
We don't copy protect.	They too, know that professionals don't cheat.
You can open multiple windows with different documents or different pages and go from one to the other editing as you go.	Facing pages only please.

Publishing Partner Professional™ — the new standard. Aggressively priced at only $199.95.

ATTENTION PageSetter OWNERS! We think you will like ours better. We are so sure, that for only $50 we will send it to you. Call (314) 894-8608 or send your program disk and $50 plus $5 for shipping to Soft Logik. This is a limited-time offer.

SOFT LOGIK™ CORPORATION

PO Box 290071 • St. Louis, MO 63129 • (314) 894-8608 • Fax (314) 894-3280

Circle 211 on Reader Service card.

well as beeps when an error occurs. Upon startup, you can set the default drives and load predefined macro-keys (glossaries).

Carriage returns, special characters (like soft hyphens), and dotted lines for margin boundaries are hidden until you specify the proper mode. The Page Preview mode shows how an entire document will look on paper. In interlaced mode you can read the document, but in non-interlaced the mock up is just to give you the overall effect.

You can open multiple document windows, then cut and paste between documents. Text is displayed in typical Amiga word-processor fashion with the screen topped by front-to-back gadgets and a ruler that shows margins, justification, tabs, indents, and line spacing. You can even hide the ruler or copy it to other parts of the document. Line spacing and font size are measured in points; everything else is done either in inches or centimeters. The zoom gadget is a handy addition for working with multiple windows. Shrink the window and click the zoom gadget; the window opens to fill the screen. Click the gadget again and the window reduces to the smaller size.

You move around a document using drag bars, arrow keys, and mouse clicks. The pointer will disappear when you start typing and reappear when you move the mouse. Cutting, pasting, and copying are accomplished by highlighting text and using the menu items or keyboard equivalents. To revert to a previous idea, you can use the Undo Typing selection, and, if you change your mind again, Redo Typing will undo the Undo Typing changes. If you mess things up, retreat to the disk files with the Revert To Saved and Revert To Backup options.

As usual, you can customize text with underlining, bold, italics, super- and subscript, and, in addition, choose foreground and background colors. Headers and footers occupy their own windows; you can place multiple headers that show date, time, and page number, and even display different information for even- and odd-numbered pages. You can force page breaks, insert soft hyphens, or let excellence! take care of hyphenation for you. At any time, you can flag a word or sentence as an index or table-of-contents entry; when you finish the document, excellence! will generate an index or table of contents.

To make your document's presentation as slick as its contents, you can use as many as 120 fonts at a time, depending on your RAM. You choose fonts in the standard fashion with one exception. When you start excellence!, it searches the disk for fonts and then adds them to the Font menu. If it finds more than one column's worth of fonts, the program adds another column of choices to the pull-down menu. If you are working in one font and return to a previous section of the document that uses another font, excellence! reverts automatically to the proper font.

You can include low-, medium-, and high-resolution IFF graphics within your document. You can scale and clip pictures, and except for the fact that you cannot search and replace them, excellence! treates graphics like any other character.

Spelling Counts

To polish your text, use the spelling checker. On one-megabyte Amigas you can load the 90,0000-word dictionary into RAM and retain normal speed, but on 512K machines you will notice typing delays. For esoteric terms, you can build dictionaries that are limited only by disk space and memory.

The thesaurus will give you synonyms and antonyms. You can highlight a word in the synonym list, ask for synonyms for it, and so on, deeper and deeper in the levels. Both thesaurus and dictionary can be active simultaneously. Unfortunately, excellence! has no keyboard equivalents for clicking on thesaurus or dictionary options like Find and Guess.

When you finish your document, the grammar checker will search for a selection of common errors such as misused words, punctuation errors, double words, clumsy or awkward phrases, and so on. It displays the number of problems, the document's reading level, and statistics such as total sentences and words, number of sentences using passive voice, and more. To put your manuscript in some sort of perspective, the program then compares the prose to a Hemingway short story, the Gettysburg Address, and a life insurance policy: A series of graphs depict the reading levels, words per sentence, use of passive tense, and so on for the four documents. A major drawback is that the grammar checker does not work with fair-sized documents on a 512K machine. I got an out-of-memory error at four pages. Be warned: As the manual points out, the grammar checker is not an English teacher, copy editor, or a crutch to be relied upon. "It ain't got real swell smarts. If ya know what I means." The preceding quote passed the checker's tests without a hitch.

The Final Grade

My first impressions are that excellence! is the kind of word processor Texcraft was meant to be and WordPerfect should have been. It is very easy to use and yet has the power and flexibility to handle just about any word-processing task. After using excellence! for a while, I have a few reservations about the program. It has no glaring problems, just minor quirks that probably could have been cleaned up with a few hours more of work. The hard-disk installation routine, some incompatibilities with Textcraft files, and a few minor, yet annoying, bugs here and there make excellence! less than it could have been. The speed could also be improved, especially when you are inserting new text in a document. I kept typing ahead of the program, even at a moderate pace. You need one megabyte or more to take full advantage of all features.

While there is still room for improvement, excellence! is definitely a top-of-the-line word processor that ranks with the best. When battling with the other giant, excellence! has enough going for it to put up a good fight.

—G. Wright

excellence!
Micro-Systems Software
12798 W. Forest Hills Blvd., #202
West Palm Beach, FL 33414
800/327-8724
$299
512K required.

Pro-Net Pro-Board

Put a trace on that board.

By Douglas E. Reich

INDEPENDENTLY OR IN concert, Pro-Net and Pro-Board help you design electronic printed circuit boards (PC ►

boards). Together, they can take an electronic circuit from the concept to the point where the manufacturing machinery takes over. In between, these object-oriented CAD programs semi-automate much of the documentation and electrical checks and balances necessary for a successful design.

The display is similar for both mouse-driven programs. Across the bottom of the screen are ten gadgets called "Intelligent Function Keys" whose labels and purposes change depending on the mode you are in. Click on the gadgets with the mouse or press the corresponding function keys. Above these gadgets is a line for instructions, helpful hints, error messages, and text entry. You can display the X and Y coordinates of your pointer and set the origin's (0,0) position. The Help key provides a list of hot keys that toggle various functions. For a larger perspective, you can zoom out to an expanded view of the circuit.

The programs use color to associate and differentiate the elements of the schematic diagrams and PC boards, such as devices, lines, and signal names. The screen colors are fixed, but well chosen, and this consistency helps you to keep track of what is displayed. Both programs operate in interlaced mode only, so be prepared for flicker.

The minimum one megabyte of RAM is sufficient for a moderate-size circuit, but PC boards larger than 8 × 12 inches require more memory. None of the disks are copy protected, and you can install the programs on a hard disk with the included script files.

The programs will output directly to an Epson-compatible printer, Hewlett-Packard (7475A, 7570A) or Houston Instruments (695, 695A, DMP-41, 42, 51, 52, 56) plotters (A through E size), an HPGL-compatible laser printer (AST, TI, and so on), or create an ASCII file for a Gerber-compatible photo plotter. You can limit output to individual layers or any combination of a board's layers.

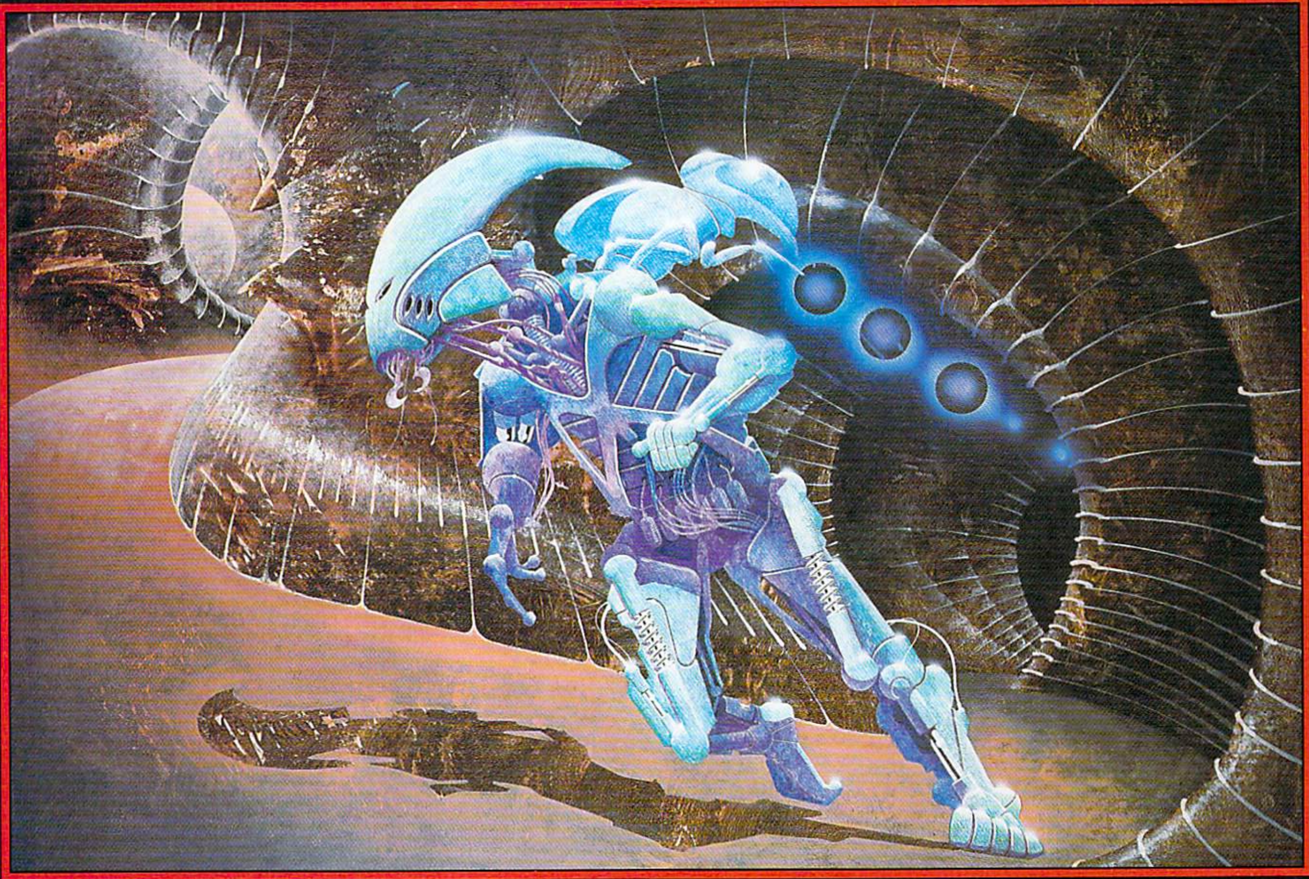
PRO-NET

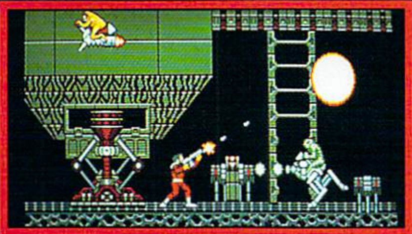
Pro-Net (PROfessional NET list generator) is a schematic capture program for creating schematic diagrams of electronic circuits. Pro-Net also creates a net list (i.e., an ASCII file that lists all the connections between the devices on the diagram). You can call a large number of popular electronic components from the existing libraries of standard TTL, MTTL (military), MOS, VLSI (microprocessors, and so on), and Discrete devices (resistors, capacitors, memories). If you don't find the device you need, you can use graphic symbols or CAD-type tools to add devices to the libraries or modify existing ones. If you enter the electrical current characteristics, I/O type, and pin numbers of each pin, the program will check the entire circuit for overloads and contention between outputs. By entering the total power consumption of a device, you can calculate the size of the power supply needed to drive the board. For on-screen references that will not be printed, simply specify text and graphics as hidden.

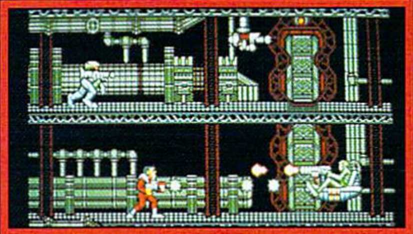
Before you begin to draw, you must select the size of the page and scale of the template for all pages. To create a schematic diagram, type in a device name (such as 74LS138), position the symbol

Continued on p. 64

OBLITERATOR









OBLITERATOR

Obliterator is a new and very exciting product from Psygnosis, which takes full advantage of the features of the Commodore Amiga and Atari ST, whilst supporting the full range of 68000, 68010 and 68020 processors.

When compared to Psygnosis's previously released animated graphic adventure - Barbarian, the player will find over 100 separate locations within the products three-dimensional playfield. The effect of the detail and complexity of the graphics must be seen to be fully appreciated.

Two other features which Psygnosis have added to this product are a "Save Game" facility and stunning music and amazing sound effects.

All this should combine to make for yet another award winning product from Psygnosis.

OBLITERATOR — $39.95

Other Psygnosis Titles

Terrorpods	— $39.95
Barbarian	— $39.95
Deep Space	— $39.95
Arena	— $39.95

All available for 512K Colour, Atari ST, Commodore Amiga.

PSYGNOSIS
1st Floor Port of Liverpool Bldg.
Pier Head,
Liverpool.
L3 1BY.
United Kingdom.
Tel. No. 011 44 51 236 8818
Fax. No. 011 44 51 207 4498

PSYGNOSIS

Circle 123 on Reader Service card.

BASIC By The Numbers

Learning to juggle GELs is simply a matter of finding the right handle.

By Bob Ryan

48 Two for One

BESIDES BEING ABLE to handle object-border collisions, Amiga Basic can also handle collisions between different objects. The following program, a modification to the one in #46, demonstrates this point. Once again, I use the Ball object from the Extras:BasicDemos drawer. This time, however, I use a variation of the OBJECT.SHAPE statement to make a duplicate of Ball and then set both objects in motion. Here's the listing:

```
CHDIR "BasicDemos"
OPEN "Ball" FOR INPUT AS #1
OBJECT.SHAPE 1, INPUT$(LOF(1),1)
CLOSE #1
OBJECT.SHAPE 2, 1

OBJECT.X 1, 30
OBJECT.Y 1, 30
OBJECT.VX 1, 40
OBJECT.VY 1, 30

OBJECT.X 2, 500
OBJECT.Y 2, 150
OBJECT.VX 2, -30
OBJECT.VY 2, -40

ON COLLISION GOSUB c_handler
COLLISION ON

OBJECT.ON
x=1
WHILE x=1
  OBJECT.START
  SLEEP
WEND

COLLISION OFF
OBJECT.CLOSE
END

c_handler:
REM check for correct window
  wind=COLLISION(-1)
  IF wind <> 1 THEN
    REM Rule 1 bad window id
    REM end program
    x=0
    RETURN
  END IF

REM check for id of object
  j=COLLISION(0)
  IF j <> 1 OR j <> 2 THEN
    REM Rule 2 bad object id
    REM end program
    x=0
    RETURN
  END IF

REM what did j collide with?
  h=COLLISION(j)

REM hit other object
  IF h=1 or h=2 THEN
    REM Rule 3 reverse direction
    REM of bumped object
    OBJECT.VX h, -OBJECT.VX(h)
    OBJECT.VY h, -OBJECT.VY(h)
    count=count+1
    IF count=10 THEN
      REM Rule 3A quit program
      REM after ten object
      REM collisions
      x=0
    END IF
    RETURN
  END IF

REM hit one of the sides
  IF h=-2 or h=-4 THEN
    REM Rule 4 reverse x-direction
    REM of object
    OBJECT.VX j, -OBJECT.VX(j)
    RETURN
  END IF

REM hit top or bottom
  IF h=-1 or h=-3 THEN
    REM Rule 5 reverse y-direction
    REM of object
    OBJECT.VY j, -OBJECT.VY(j)
    RETURN
  END IF

REM hit nothing, something is weird
  REM Rule 6 get out!
  x=0
  RETURN
```

Line four of the program demonstrates the alternate form of the OBJECT.SHAPE statement. This form makes a copy of an already defined object (Object 1), and defines the copy as another object (Object 2). The program then gives the initial positions and velocities to the objects before setting them in motion and watching for collisions.

Because this program handles object-object collisions as well as object-window collisions, it has a more complex collision-handling routine than the one I used last month. You should think of a collision-handling routine as a set of rules that govern what happens when a collision occurs. I lay out my rules in the routine c_handler. The first rule says that if the collision did not occur in my output window, then it's time to quit because something is wrong. The second rule says that if it was not one of my objects involved in the collision, then once again quit the program.

Rule 3 states that if the object collides with another object, the second object gets both its x- and y- direction reversed. Rule 3A states that after 10 object-object collisions, the program ends.

Rules 4 and 5 cover object-border collisions. Rule 4 reverses the x-direction of objects that collide with one of the sides; Rule 5 reverses the y-direction of objects that collide with the top or bottom of the window. Rule 6 is a catchall; if none of the other rules have been applied by this point, something is wrong and the program ends. ►


ONE GREAT GAME
DESERVES ANOTHER
ARKANOID
TAITO
33 NEW LEVELS
DISCOVERY SOFTWARE INTERNATIONAL
ZOOM!
DISCOVERY SOFTWARE INTERNATIONAL
A NEW CHALLENGE
ARKANOID
• The best just got better
• Reviewers agree: unparalleled arcade quality
• Upgraded to 66 knockout levels!
• Twice chosen as arcade "game of the year"
• 30-day unconditional money- back guarantee
ZOOM!
• At last, a dynamic new game concept
• A mesmerizing combination of action and strategy
• 50 levels. 1-2 players or 2 players at once
• She'll love it too, so will the kids!
• 30-day unconditional money-back guarantee
Circle 89 on Reader Service card.
DISCOVERY SOFTWARE INTERNATIONAL
Discovery Software International products are available at your favorite retailer.
Call 1-800-34-AMIGA for details. Arkanoid, $29.95. ZOOM! $29.95. Prices may vary.
Discovery Software International, Inc., 163 Conduit Street, Annapolis, MD 21401. 301-268-9877.
Arkanoid and ZOOM! are compatible with any Amiga™ model. Amiga™ is the registered trademark of Commodore-Amiga, Inc.
Taito® and Arkanoid® are registered trademarks of Taito America Corporation. •1987 Taito America Corporation.
All rights reserved. •1987 Discovery Software International, Inc.

49 Save the Clippings

WHEN YOU RESIZE the output window of the program above, you will notice that the objects don't bounce off the new borders of your window; instead, objects continue to bounce off the old borders. To change the border used for collisions, you have to use the OBJECT.CLIP statement.

OBJECT.CLIP defines the area that Amiga Basic can draw objects into. When you start an animation program, this area defaults to the entire output window. This default remains in force even if you change the size of the window. If you want the clip area to always match the borders of your window, then your program must be prepared to respond to window-sizing events.

The program below is a simple animation demo with a twist—it responds to mouse events as well as collision events. Specifically, the program monitors mouse events to see if the user has pressed the left mouse button. If so, the program waits until the button is released and then resets the clip area to reflect the current coordinates of the output window. Note that pressing and holding the left button does not necessarily mean that the window was resized. The program can make this assumption, however, because all other mouse events are meaningless to the program and nothing bad happens if the assumption is false.

```
OPEN "BasicDemos/Ball" FOR INPUT AS #1
OBJECT.SHAPE 1, INPUT$(LOF(1),1)
CLOSE #1
ON MOUSE GOSUB m_handler
MOUSE ON
OBJECT.X 1, 50
OBJECT.Y 1, 50
OBJECT.VX 1, 40
OBJECT.VY 1, 40
OBJECT.ON
ON COLLISION GOSUB c_handler
COLLISION ON
x = 1
WHILE x = 1
  OBJECT.START
  SLEEP
WEND
OBJECT.CLOSE
END

c_handler:
REM simplified handler, assumes
REM window and object are kosher
bump = COLLISION(1)
IF bump = -2 or bump = -4 THEN
  OBJECT.VX 1, -OBJECT.VX(1)
ELSE
  OBJECT.VY 1, -OBJECT.VY(1)
END IF
count = count + 1
IF count = 20 THEN x = 0
RETURN

m_handler:
MOUSE OFF
WHILE MOUSE(0) <0
WEND

OBJECT.CLIP (0,0) - (WINDOW(2),WINDOW(3))
MOUSE ON
RETURN
```

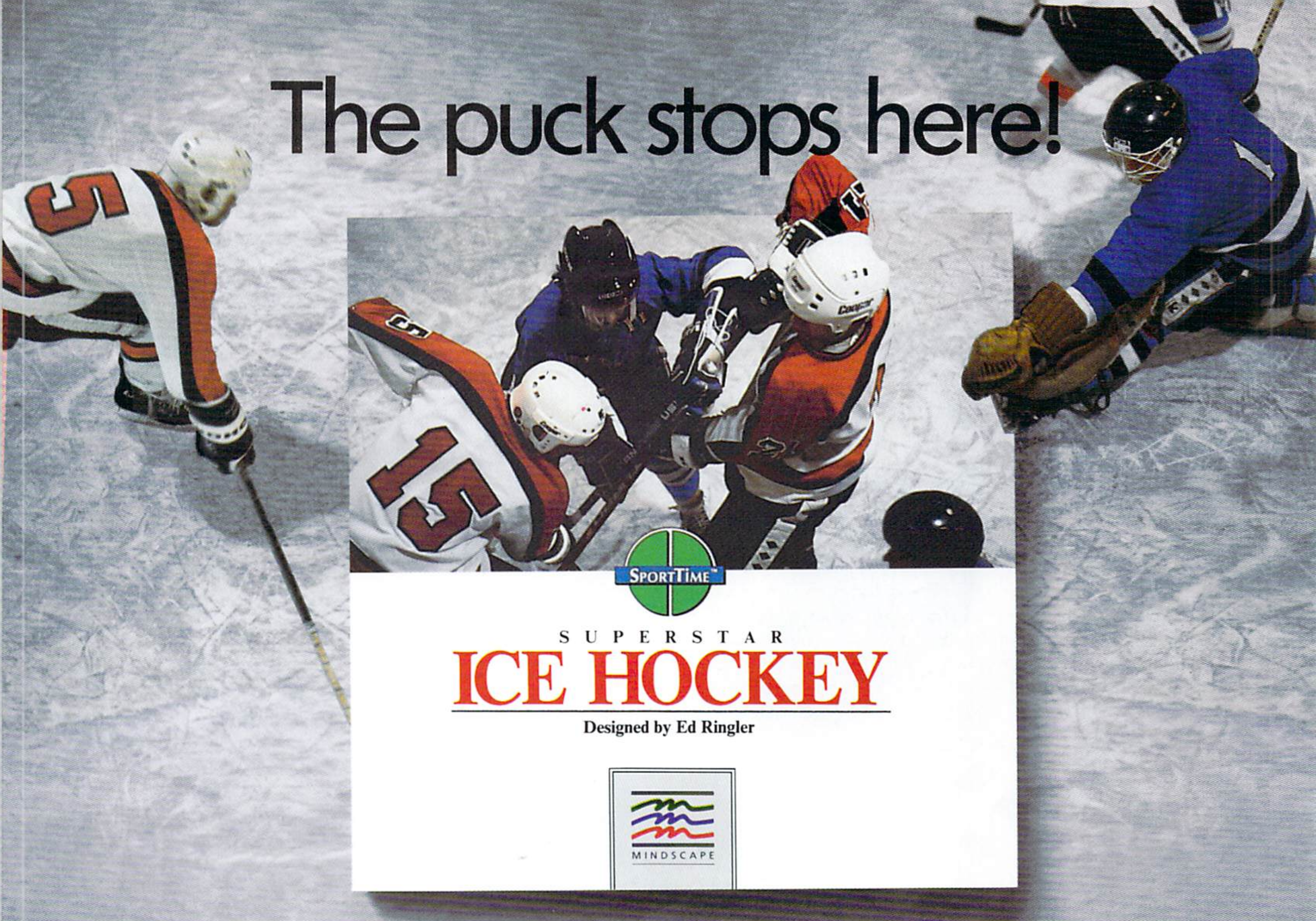
The collision-handling routine used here is a simplified version of the one I've used in other animation examples. This is the first program in BASIC by The Numbers, however, that traps mouse events. Like menu- and collision-event trapping, you enable mouse-event trapping with the MOUSE ON statement and designate the mouse-handling routine with the ON MOUSE GOSUB statement.

My mouse-handling routine, m_handler, uses just one of the MOUSE( ) functions. Listed on pages 8-84 and 8-85 of your Amiga Basic manual, the mouse functions return various data about the state of the mouse. In my program, I only use the MOUSE(0) function. When this function returns a negative number, it indicates that the mouse button is still being held down. The WHILE. . . WEND loop in m_handler waits until the button is released (and the window is resized) before ending. Once out of the loop, the routine resets the clip area by calling two WINDOW( ) functions that indicate the current size of the window. The routine then reenables mouse events and returns to the main program.

50 Take a Break

STILL LEFT IN our discussion of Amiga Basic animation are OBJECT.HIT, OBJECT.PLANES, and OBJECT.PRIORITY. I won't cover these statements until the November issue, however, because next month's column is devoted to an examination of many of the programming utilities available to BASIC programmers. Until then, send questions and comments to BASIC By The Numbers, AmigaWorld, *80 Elm St., Peterborough, NH 03458.* ■

The puck stops here!



STOP LOOKING. THEY DON'T GET ANY BETTER THAN THIS.

Here's what the critics say about the Superstar Ice Hockey action, strategy and on-ice moves:

"Superstar Ice Hockey is the best action-strategy sports simulation ever published. Period." —*Ahoy!*

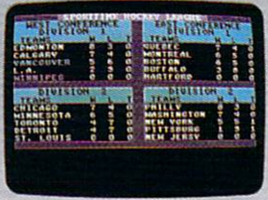
"It combines 3 distinctly different elements of professional ice hockey—on-ice action, coaching and strategy, front office decision making—into one very impressive package." —*Run Magazine*



Fast realistic action

"...comes pretty close to capturing the mental excitement of the game." —*PC Magazine*

"Superstar Ice Hockey is one of the best sports simulations I've seen in a long time." —*Family Computing*



Complete league stats

"The actual game has a nice feel to it, giving you the distinct impression of actually being out there on the ice." —*Computer Entertainer*

"It's a crowd-pleasing software hat trick that scores with every shot." —*Commodore*

See what all the excitement is about. Play Superstar Ice Hockey by SportTime yourself!

MINDSCAPE INC

M I N D S C A P E





DUCKS IN A ROW:

A ROUNDUP OF AMIGA DATABASES

Whether it's recipes for cheesecake, duckling production figures for the third quarter of '88, or worldwide sales records for a giant multinational—our roundup of Amiga databases will help you find the program to fill your data-management needs.

By Guy Wright and Barbara Gefvert

LIKE DISNEY'S PRUNELLA and Griselda to Cinderella, or Shakespeare's Goneril and Regan to Cordelia, file managers and databases are the grim sisters of computer applications (compared with the beauty of all the more snazzy and exciting things you can do with your Amiga). But sometimes it's simply an unpleasant necessity to get all your ugly data ducklings in a row. So put aside your graphics and animation programs, your sound digitizers, your Earl Weaver Baseball, and your nifty C routines for just a moment. We're going to sort, search, sift, sniff, and systematize all your data management concerns in *AmigaWorld*'s first "database roundup."

Over a number of back issues, we've reviewed quite a few database programs. Everything from simple file managers to full-fledged relational data-management systems. Return with us now to those thrilling... while we take a look back to some of those reviews, update them, and add a few new titles that have come our way since. What we've put together is an even dozen capsule presentations of the best-selling Amiga databases. These snapshots summarize the major points of each program without placing any real judgements on them. In the case of programs reviewed previously in *AmigaWorld*, we include a citation of the original review at the end of the snapshot, should you wish to see how our reviewer felt about the program.

We will start with the simple and work up to the more complicated and comprehensive. Most programs excel in performing particular tasks. Keep in mind that bigger and more complicated is not always better. If you have a limited number of things to keep track of but need to refer to them often, then a small file manager might be your best choice. If you are going to be adding records every day, then a batch-entry program might best serve your needs. If you need to manipulate the data in various ways, search ►

PHOTOGRAPHED BY PAUL AVIS



and report-generating features are what you should look for.

You should consider not only your present needs, but also what you might want to do with your data in the future. Imagine finding, after you've just entered a hundred records with five-digit zip codes, that you need to add seven-character Canadian zip codes, but your zip code field cannot accommodate you.

Each capsule description is headed by the name of the program, followed by the name of the manufacturer and the suggested retail price. For further information about the product, contact the manufacturer or distibutor (see the "Company List" for addresses and telephone numbers).

A chart, "Amiga Database Roundup: Comparative Features and Functions," also accompanies this article, as well as a "Glossary of Database Terms."

The Computer Black Book

Meggido Enterprises / $35.95. The Computer Black Book is a simple program that keeps lists of names, addresses, and phone numbers. It will also dial the telephone for you, recite a message, and print lists.

The program employs an Intuition-style interface. You need at least four records to build a file; each record is limited to a first and last name (23 characters each), a title, a three-line address, an eight-digit zip code, telphone number, and a 59-space comment line. You are not limited as to character types.

The Computer Black Book allows you to keep one file open at a time. You can display one entire record on screen, or scroll through the names and phone numbers in your file (eight file entries are shown at once). Click on any line and select dial, and the program emulates touch tones to dial the corresponding number. You can also use the Amiga to dial numbers not in the database simply by pointing and clicking on the numerals in the keypad window. The program keeps one phone number in a buffer, so redialing takes only one click.

The program will sort your file by name, zip code, or phone number. You can print any file, complete or partial, and determine which lines of the records are to be printed. You can specify the order in which names are printed, whether the title will be used, and select one of three print styles in two sizes.

Rolobase + Plus

Equal Plus Inc. / $89.99. Rolobase + Plus, from Equal Plus, is designed to replace the name-and-address file that sits on your desk. This program is covered by a 90-day defect-in-workmanship warranty. The non-Amiga specific manual guides you through the features, function "help" keys display keyboard layout for your computer, and an on-screen tutorial familiarizes you with the system.

You can define your entries by personal and business classifications. In addition to name, title, address, city, state, zip code, country, and phone number, Rolobase + Plus will hold up to 255 80-column lines of information per entry in a text extension. You can set entry and printing defaults, and configure the system to skip the country field for input.

You can add, change, or delete records at any time. The program can select data by distinguishing between personal and business records, and you can further qualify data using the Match Keywords option (yes or no to match) and ranges (name, country, and zip code). Unlike some programs, this one distinguishes between uppercase and lowercase letters—it locates capital letters first.

Pressing certain letter keys in the Rolobase + Plus menu takes you to various windows within which you can perform specific functions. For example, the A key allows you to print addresses on labels, postcards, or envelopes, while the F key sets up to print information on file cards. You can send reports to the screen or printer in four formats: complete, with address and phone number, phone number only, and text extension information. The program lets you choose, line-by-line from a list of options, the way you want to output the data. You can store multiple printer configurations.

A particularly useful feature of this database is its ability to accept files from the Financial Plus integrated accounting package (also from Equal Plus, at $295). Simply select categories within files, and the program transfers the information automatically.

Microfiche Filer

Software Visions Inc. / $99. Microfiche Filer, one of the first file managers for the Amiga, is one of the simplest and most elegant. Unlike any other database program, it displays almost everything on the screen at one time. Like traditional microfiche machines used in schools and libraries (where information is stored in reduced format on thin plastic sheets and then viewed in single, magnified sections), Microfiche Filer allows you to scroll through the entire file to find and then view information.

Microfiche Filer stores information in boxes that are reduced on the Amiga's screen (the number is limited only by memory). You scroll with the mouse to find the record you need, and then click on the box to "magnify" it. The program offers few sorting options, but once you have things organized, roving through the information is highly intuitive and fast.

Moving, cutting, pasting, adding, and copying sections of the database are accomplished with the mouse, and nearly every function has keyboard equivalents. You can generate reports easily by using predesignated formats. Search options include equal to, greater than, less than, chaining, and character position (first or last in a field), but sophisticated logical operators are not available. While you can search only one field at a time, you can use multi-pass searches to zero in on the information you need.

Microfiche Filer accepts IFF graphics of up to 32 colors, but translates them into four colors (an editor lets you modify the process). An option lets you see graphics in their original palette and resolution in a separate window.

Microfiche Filer may be limited in options, but it can't be beat for ease of use. It's fast, non-copy-protected, works well on a hard disk, and ideal for simple applications. (*Microfiche Filer was reviewed by Ted Salamone on p. 86 in the November '87 issue of* AmigaWorld.)

Note: V, a professional database in the sytle of Microfiche Filer, is due out this fall.

Info +

Eastern Telecom Inc. / $49.95. With Info +, a simple list manager, creating and updating files is simple. A field can contain up to 80 characters, and each file will hold 32,765 records. Info + works in either 60- or 80-character-per-line mode, and you can modify the display colors. You must use the mouse for most operations, but some commands have keyboard options.

To create a new file, simply modify the generic template. Only two field types are available: numeric, which is permanently set with a dollar sign and two decimal places, and alpha. Once you have designed your file format, you can customize the display (and hence the data-entry order) by click-and-drag mouse action. You can change the names, types, and sizes of fields, and add or remove fields at any time.

Info + can sort—low to high only—one field at a time. The program searches for matches anywhere in a field (you specify greater than, less than, or NOT) and will follow the last sort criteria. You can also direct the results of a search to a new file.

Report generation is limited to printing one record, a range of records, or all records. You can vary the order in which the fields are printed, and temporarily replace the field names with column headers. There is also an option for sending the results of a search to a new file, which should enable you to customize reports, but this is not Info + 's strong suit.

Info + is ideal for simple file keeping that does not require much data manipulation or report generating. Because you can use the files in RAM or on disk, short files such as personal address books should work fairly fast. There aren't too many bells or whistles here, but an address book doesn't need them.

SoftWood File IIsg

SoftWood Company / $99.95. SoftWood File IIsg, formerly MiAmiga File, is not quite a full database, but it is more than a simple file manager. Information is stored in fields or boxes of ten types: text, amount, date, time, yes/no, phone, alpha, alphanumeric (numbers and letters in ASCII format), picture, and sound. These definitions serve as error checkers during data entry; they are not functional for sorts and searches. Data entry is simple and, unlike some programs, does not rely on the mouse.

SoftWood File allows you to display data as a list or a form. In List mode, the data is laid out like a spreadsheet; each record occupies one line. You can move horizontally through the fields and vertically through the records with scroll bars. In Form mode, one record appears on the screen at a time. In either mode, you can resize and transpose boxes with the mouse. If a box is too small, simply stretch it; if you want the last name first instead of second, merely rearrange the boxes on the screen. You can save each layout to disk with its own name.

Low to high or high to low, you can sort fields one at a time. The "progressive" mode, which remembers the last sort, is available for multiple-level sorting. Once you define search parameters by example or range, you can ask the program to either include or exclude matching information. SoftWood File does not let you specify logical operators, but it gives you the basics (greater than, less than, and so on). Because all information is memory-resident, it is fast. Report generation is a bit limited but does include a number of useful features: variable date formats; 17 currency symbols; headers; page numbering; totaling of amount columns; left, right, and center justification; and some degree of printer control (not present in the original version).

The program also allows you to do quick screen dumps. Label printing is a simple matter of moving the boxes you want printed to the top five lines of the form-mode screen. Another feature handy for generating reports is the ability to hide fields; a "hidden" field is simply not printed or displayed.

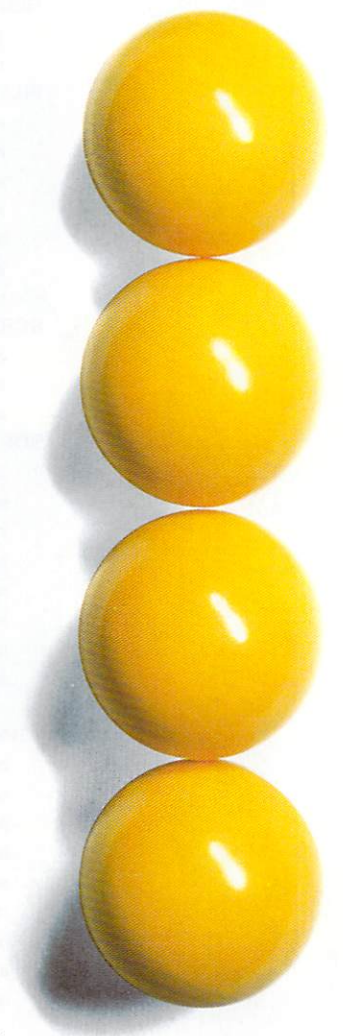
The "sg" in SoftWood File IIsg stands for sound and graphics. You can store names of graphic and sound files in the database and display or play them simply by clicking on them. There are also slide- and sound-show capabilities, and a "movie" option for playing series of sounds and graphics. Another feature will "dial" the telephone for you. Simply hold your telephone receiver to the Amiga's speaker and click on the Phone box, and the program plays the appropriate touch tones to dial that number.

SoftWood File IIsg has been improved a great deal since our original review. The SoftWood Company has added many disk commands, including SAVE-AS and import, as well as ASCII-save and mail-merge capabilities. The program lacks sophisticated sort, search, and report-generation features, but it does a good job and it's outstanding in the way it lets you manipulate forms and files. (*SoftWood File IIsg was reviewed under the name MiAmiga File by Bob Ryan on p. 108 in the November/December '86 issue of* AmigaWorld.)

Note: A relational database compatible with SoftWood File IIsg will be released this fall.

Organize!

Micro-Systems Software / $79.95. Organize! is a medium-size, medium-feature database with a strong ►



Amiga Database Roundup:
Comparative Features and Functions

	Computer Black Book	Rolobase + Plus	Microfiche Filer	Info +	SoftWood File IIsg
Manufacturer	Meggido Enterprises	Equal + Plus	Software Visions	Eastern Telecom	SoftWood Company
Price	$35.95	$39.95	$99.00	$49.99	$99.95
Memory Required	512K	512K	512K	256K	512K
Copy Protected	N	N	N	N	N
Programming Language	N	N	N	N	N
Programmable Macros	N	N	N	N	N
FIELDS					
max. length (chars)	fixed	unlim.	unlim.	80	64
types	fixed	fixed	3	2	10
type formats	N	N	N	N	N
graphics	N	N	Y	N	Y
sound	Y	N	N	N	Y
indexed	Y	Y	N	N	N
editable	N	N	Y	Y	Y
editable w/mouse	N	N	Y	N	Y
RECORDS					
fields per record	12	12	unlim.	5120	32
max. length	fixed	fixed	unlim.	5120	unlim.
FILES					
records per file	unlim.	14MB	unlim.	32,765	unlim.
open multiple files	N	N	N	N	N
exchange between files	N	N	N	N	N
relational	N	N	N	N	N
import/export files	N	Y	Y	N	Y
save as any format	N	N	Y	Y	Y
mail merge	N	N	Y	N	Y
SCREEN					
edit display	N	N	Y	Y	Y
save custom display	N	N	Y	Y	Y
edit display w/mouse	N	N	Y	Y	Y
SORTS/SEARCHES					
Boolean	N	N	Y	N	N
multiple fields	N	Y	Y	N	Y
range	N	Y	Y	Y	Y
case-sensitive	N	Y	Y	N	N
wild cards	N	N	Y	N	Y
search records	N	N	Y	N	N
save search output	N	N	Y	Y	N
save search forms	N	N	N	N	Y
search and replace	N	N	Y	N	N
REPORTS					
custom forms	N	Y	Y	N	Y
save custom forms	N	Y	Y	N	Y
printer control	Y	Y	Y	N	Y
headers/footers	N	N	Y	N	N
sorts/searches	Y	Y	Y	Y	Y
ranges	Y	Y	Y	Y	Y
math	N	N	Y	N	Y
add text	N	Y	Y	N	N
date/currency options	N	N	Y	N	Y



ORGANIZE!	OMEGA FILE	DATARETRIEVE	SUPERBASE PERSONAL	DBMAN	ACQUISITION	SUPERBASE PROFESSIONAL
Micro-Systems	The Other Guys	Abacus	Precision	VersaSoft	Taurus-Impex	Precision
$79.95	$79.99	$79.95	$149.95	$199.95	$299.95	$349.95
512K	512K	512K	512K	512K	512K	512K
N	N	Y	Y	N	N	Y
N	Y	N	N	Y	Y	Y
N	N	Y	N	N	Y	Y
254	200	unlim.	255	254	unlim.	255
4	3	6	4	4	6	5
N	N	Y	Y	N	Y	Y
N	N	Y	Y	N	Y	Y
N	N	N	N	N	Y	Y
Y	Y	Y	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
N	N	Y	N	N	Y	N
128	256	unlim.	unlim.	128	unlim.	unlim.
4096 bytes	5000	unlim.	unlim.	4000	unlim.	unlim.
unlim.	32,000	unlim.	unlim.	unlim.	unlim.	unlim.
N	Y	Y	Y	Y	Y	Y
N	Y	Y	Y	Y	Y	Y
N	N	N	N	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
Y	Y	Y	N	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
Y	N	Y	Y	N	Y	Y
Y	Y	Y	Y	Y	Y	Y
N	Y	Y	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
Y	N	Y	Y	Y	Y	Y
Y	Y	Y	Y	N	Y	Y
N	N	Y	N	N	Y	N
Y	Y	Y	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
N	Y	Y	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
N	Y	Y	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
Y	Y	Y	N	Y	Y	Y
N	N	Y	Y	Y	Y	Y

math basis. It is compatible with the Scribble! word processor and Analyze! spreadsheet, also by Micro-Systems Software. (You can purchase it alone, or in a three-part package called The Works! at $199.95.)

Organize! can handle 4.2 billion records containing 128 fields, each with up to 254 characters. You cannot keep more than one file open at a time, however. Program utilities let you merge Organize! files.

There are four field types—text, numeric, date, and yes/no—and a variety of formats available. The program normally displays information in list format, but by using "forms" (custom screens used for data entry and reports) you can create a wide variety of displays and printer output.

Organize! employs another type of form to sort and calculate. While you can save multiple forms on disk, sorts and calculations do not change or rearrange the data itself, but rather the way it is displayed. The program sorts on an index basis, and while you can create multiple indexes, they will not work si- ►

Glossary of Database Terms

batch entry a method of entering data into a database. All new data is stored in a file and then merged with the existing data in programs that employ batch entry.

boilerplating a method of integrating data from different files to produce customized output in a standard format. Mailmerge is a type of boilerplating wherein names and addresses from a list are substituted for specified variables in a form letter.

data types the type of data a field can hold. Most databases allow you to specify data types. Common types are text fields, amount fields, date fields, and numeric fields. For example, in an inventory database, you would specify a name field to type text and a price field to type amount.

field the fundamental building block of a data file or a database. A field contains one discrete piece of information, such as a name, zip code, or phone number.

file a grouping of records that share identical field definitions. For example, a student file would be a grouping of student records, each containing the same types of fields about each student.

index a table that contains a pointer to each record in a file. Indexes are normally ordered according to an index or key field. Often, a file itself is not searched or sorted; rather, these operations are performed on the index to the file. Operations performed on an index are faster than operations performed on an entire file.

range a criteria you choose for extracting information from a database. For example, if you want to extract white-collar crime statistics for the 1980's from a police database, you would specify a range where date is greater than December 31, 1979 and crime-type equals white-collar.

record a grouping of fields that contain related information. For example, a client record might contain a name field, an address field, and a phone-number field.

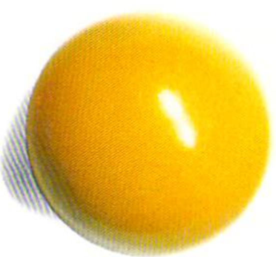
relational database a database where fields can be shared by two or more files. If your inventory and income files share an amount field, for instance, a sale posted to either file can change the other one. Shared fields define the relationship between the files that make up the database.

report a listing of information from a database. Normally, information reports fit an indicated form or criteria.

search a means of retrieving specific information from a database. When you instigate a search, you supply the conditions or range of the data you want to locate. For example, you could have the database search and retrieve all information concerning Michael Dukakis. You can further refine the information you're searching for by specifying compound range criteria.

sort a process by which the order of records in a file is changed. Normally, you select one field as a key field. The sort routine then orders the records based upon the contents of the key field in each record. For example, an alphabetical sort on the last-name field in a student file will reorder the records in the file based upon the last name of the students. Most databases allow multiple-key sorts, allowing you, for example, to sort an address file by state and then by last name inside each state.

view an application-specific way to look at data in a database. Oftentimes, you only want to see part of the data in a large database. Most database programs allow you to specify different views for working with the same data. Each view uses a subset of the fields that make up a database.



multaneously. Searches can be quite detailed; a criteria filter holds up to 254 characters and Boolean operators, but as with indexes, you can use only one filter at a time.

Math is Organize!'s main strength. You can choose from five math operators, thirty-two math functions, five date functions, three financial functions, eight comparison and logical operators, conditional logic, date arithmetic, and summary calculations.

The simple forms for generating reports let you arrange fields in any order, or choose not to display any if you wish. You can add text to a form screen and temporarily change field titles for output to screen, printer, or disk. You can save a sorted file with any ASCII-compatible word processor for more complicated mail merge and boilerplating reports. Labels are quite easy to create.

Organize! can read ASCII and dBase III files (except memo fields or dBase indexes). While you can have only one index or search filter active at any time, the filter criteria are extensive, the method for entering, displaying, and sorting data is flexible, and the math and calculation functions are impressive. Finally, the capacity for integration with other Micro-Systems software adds value. (*Organize! was reviewed as part of The Works! by Bob Ryan on p. 64 in the May '88 issue of* AmigaWorld.)



Omega File

The Other Guys / $79.99. Omega File is a full-featured database program. You can create up to 256 fields of three types (text, integer, or number), each containing 200 characters. Files can consist of 32,000 records with 5000 characters each. You can move around the database with either the mouse or keyboard, and perform ascending and descending sorts on up to 20 fields.

Once you have created your database, you can alter the characteristics only by saving the data as a sequential file, creating a new format, and then reading the data back in. You can also clone a database structure without the data. You can keep multiple databases open at the same time, and with cut- and paste-like options, you can move data easily from one to another.

Omega File offers complex search parameters such as NOT, AT, IN, and the use of parentheses. You can save searches and even delete information based on a search. Because Omega File lets you sort and select information before saving it as a sequential file, it is ideal for creating reports.

Omega File's unique math functions and report-generating features make it an ideal candidate for scientific applications. The math features extend to exponential functions, logical operators, trigonometric functions, and more.

The program includes a mini-text editor with boilerplate commands and options, although you can employ any text editor or word processor that saves in ASCII format and still make use of Omega's numerous dot commands for report generation. These dot commands encompass even rudimentary programming-like structure features similar to nested FOR/NEXT loops; while a bit confusing, they give you near-complete output control.

The ability to cut and paste between databases, extensive data manipulation based on sorts and searches, custom sequential file creation, exhaustive math functions, and completely customizable reports combine to make Omega File very powerful.

DataRetrieve

Abacus / $79.95. DataRetrieve features a high degree of flexibility, tremendous capacity, and an icon interface. Most of the entering, searching, sorting, and printing features rely on a "mask" (template) concept. The maximum field length is 32,000 characters, records can contain 64,000 characters, and a file holds up to 2,000,000,000 records. You can have up to eight databases open at the same time and cut and paste information between them. DataRetrieve is disk based, and while that attribute can cause some delays, it also allows larger files than RAM-based programs.

Setting up a database is a simple matter of creating fields of any of six types: text, date, time, number, IFF, and "choice" (where the data entered must match a set of criteria, such as yes or no, male or female, and so on). You can further define each type as input, repeat, verify, auto, or required, and the formats are variable and customizable (as with a date field). There are two levels of password protection.

DataRetrieve's math functions are impressive; they include the basics plus logical operators, geometry, and trigonometry (modulo division and current record count are especially unique features).

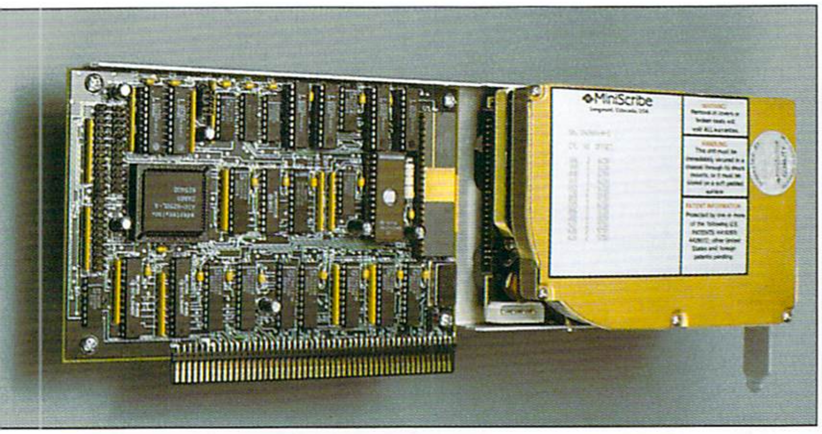
Once you have set up the record template, you can customize the mask to a great extent with a paint-program-like icon interface that lets you adjust color and fonts, enclose fields in boxes or circles, and create lines of various thicknesses or even patterns. You can add text to the display for quick screen-dump reports.

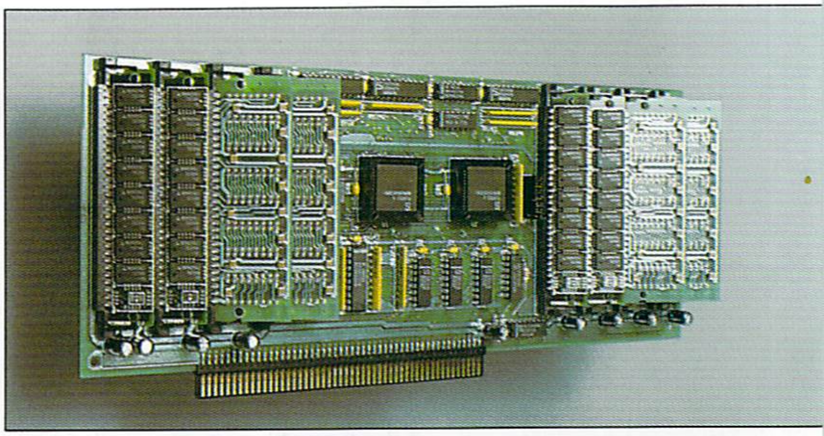
DataRetrieve will sort any field or combination of fields (high to low or low to high), and you can specify any level of precision, from one character to 999. Search options include wild cards, range searches, and alternative matches, all of which can be performed anywhere in a field or record. There is no limit on simultaneous multiple-field searching.

Report generation is a matter of defining another mask. Your report mask can include headers, text, and footers (with numbering), auto subtotals, and a trigger to induce form-feeds for printing information categories within fields on separate sheets. You can perform sorts, searches, and reports on blocks of data, and save information as a sequential file for use with word processors or other database programs (you can even specify field separators). Although not relational, DataRetrieve is very flexible and custom-►

HardFrame/2000
The Super-speed, DMA, SCSI Hard Disk Interface with 1.3 Autobooting

8-UP! The Eight Megabyte Memory Card with Amiga™-specific DRAM Controller Logic





How fast is fast? **HardFrame/2000** transfers data at Amiga bus speeds! It's actually faster than the hard disk mechanism itself! And even more important in the Amiga's multitasking environment, **HardFrame/2000** has extremely efficient DMA circuitry to get on and off the bus in almost no time at all: 280ns to get on; 200ns to get off. **HardFrame/2000** autoboots under AmigaDOS™ 1.3 and is fully compatible with the new Fast File System. The core of any DMA SCSI interface is its SCSI protocol chip and DMA chip. MicroBotics has chosen the new, high performance Adaptec AIC-6250 SCSI chip, capable of up to 5 megabytes per second raw transfer speed, and the Signetics 68430 DMA chip running at 12.5 megahertz. Then we added additional FIFO buffering and enabled 16-bit wide data transfers for maximum throughput. The sophisticated design of **HardFrame/2000** provides for automatic SCSI arbitration, selection and reselection. The hardware supports either synchronous or asynchronous data transfer. **HardFrame/2000** can function as either the SCSI bus initiator or the target and can reside in a multiple master environment. Physically, **HardFrame/2000** is optimally flexible: the compact, half-size card comes attached to a full length, plated aluminum frame. The frame has mounting holes positioned to accept standard, 3.5" SCSI hard disk units such as those manufactured by MiniScribe, Seagate, Rodime, and others (hard disk mechanisms must be supplied by the user or his dealer as a separate purchase item). Alternatively, you can cable-connect to a SCSI drive mounted in your Amiga's disk bay or in an external chassis. As many as seven hard disks may be connected to a single HardFrame. There is no size limit on each disk. **HardFrame/2000** includes a 50-pin SCSI cable and header connectors for either 50-pin or 25-pin cable connection. Also included is a current tap to power frame-mounted drives directly from the slot itself. **HardFrame/2000** comes complete with driver, installation, and diagnostic software. Available September 1988. Suggested list price, $329 (hard disk not included).

All the memory space you and your Amiga 2000 need –in a modern, highly integrated FastRAM expansion board. In **8-UP!**, MicroBotics went all the way to provide you with a truly Amiga-specific memory design to meet the special demands of the Amiga's high speed multitasking environment: The heart of any memory expansion is its *DRAM controller circuitry*. Rather than compromising with off-the-shelf parts, MicroBotics developed its own, custom controller design and built it into high-speed, *Programmable Macro Logic* chips (Signetics PLHS501). These new, super chips (each **8-UP!** uses two PML's) permit MicroBotics to employ *sparse refresh* technology to assure that your **8-UP!** is a truly zero wait-state/minimal-refresh-collision memory design. If you're putting eight megabytes in only one slot, that means that you probably have plans for your other A2000 slots. **8-UP!** gives you new freedom to do that planning since, unlike other ram peripherals, it is an extremely low-power memory card– a single, fully-loaded, 8-megabyte **8-UP!** draws an astoundingly efficient 0.800 milliamps! That's less than *two-fifths* of the power "budget" for a single slot! Low power draw also means that the card is cool-running for reliability and long life (not to mention a cooler Amiga!). **8-UP!** offers you maximum flexibility in memory configuration: it is organized into two separate *PIC's* (Amiga-speak for autoconfiguring peripherals). Each **8-UP!** PIC consists of four SIMM module sockets; these sockets accept either 256k-byte or 1 megabyte *SIMM's* (Single Inline Memory Modules). You can also purchase optional *PopSIMM* boards from MicroBotics; fill them with conventional RAM ; then use PopSIMM's to fill your **8-UP!** The card can run with as little as 512k of memory or as much as eight megs –with many intermediate configurations possible (particularly the six megabyte configuration, most desirable for use with a BridgeCard™). **8-UP!** is speedy, efficient, custom memory technology for your Amiga 2000 –and it's available now! **8-UP!** suggested list price is $199 (0k installed). Optional **PopSIMM's** are $49.95 per pair.

The HardFrame/2000 photo shows the product with a MiniScribe 20 megabyte hard disk installed. Hard disks are not included in the purchase price of HardFrame. Note that if placed in the first slot, HardFrame uses only one slot.

The 8-UP! photo shows the card half populated with conventional SIMM modules and half with MicroBotics PopSIMM's. PopSIMM's (without DRAM installed) are available as separate purchase items.

MicroBotics,Inc.

Great Products Since the Amiga Was Born!

811 Alpha Drive, Suite 335, Richardson, Texas 75081 (214) 437-5330

SOLD ONLY THROUGH YOUR AMIGA DEALER

Tell your dealer he can quick-order from MicroBotics directly – no minimum quantity –show him this ad!

Circle 103 on Reader Service card.

izable. (*DataRetrieve was reviewed by Al Willen on p. 74 in the June '88 issue of* AmigaWorld.)

Note: DataRetrieve Professional, with advanced features, is scheduled for release later this fall.

Superbase Personal

Precision Software Ltd. / $149.95. Superbase Personal combines highly powerful features and simple mouse and menu operation. The size of a Superbase Personal file is limited only by available RAM and disk space, as is the number of files you can keep open simultaneously.

When creating a file, you must specify field types (including "external" for picture files) and formats (a wide variety of numeric, date, and monetary formats are available); you can even specify that data must fall within a range. The program allows you to assign required status to any field, and index status to as many as 999 fields. You can also set up fields to perform calculations based on values in previous fields; numeric, Boolean, and 29 other functions are built in.

Entering data, editing, and formatting the screen is all done with mouse and icons. Moving around a Superbase Personal file is like operating a VCR with 12 control buttons: You can fast forward, rewind, and so on. File-display options are table, form, or record formats. In form mode, you simply click and drag the fields on the screen to customize your output.

Templates called queries are the vehicles for sorting and searching. These templates, which you can save to disk for later use, are highly flexible, allowing you to specify which fields to search, the search order, any filters or limitations, and what types of file calculations are to be performed. The program uses queries to structure reports and labels as well, and while they offer many options, boilerplate features are not available.

Superbase Personal's ease of use and sophisticated search and calculation routines make it one of the best for data manipulation and structuring. (*Superbase Personal was reviewed by Al Willen on p. 66 in the July/August '87 issue of* AmigaWorld.)

dBMAN

VersaSoft Corporation / $199.95. dBMAN is a relational database program that allows an infinite number of files and virtually limitless file and record sizes. The program offers three functions: information management, program development, and report and label printing. The disk contains a tutorial and a point-and-click guide to using the software, as well as a simple checkbook manager.



dBMAN accepts four data types: character, numeric, logical (yes/no and true/false), and date. You can retrieve and relate data from ten files simultaneously. Your display options are wide ranging: You can display an entire file (or the portion that fits on screen) and type in commands to scroll through it; you can also display selected records (using ALL and FOR commands) or fields within records, or simply the file structure (size and number of fields).

Communicating with the program involves entering commands on a CLI-like line. The EDIT command lets you change data within records singly, while the REPLACE command can change the specifics of many records at once. Changing your database structure involves making a temporary copy of your file, restructuring (inserting or erasing fields, or changing field name, type, or size), and then refilling the file with the stored information.

To move through files, use the SKIP and GOTO commands. You can sort or index files in multiple levels by any category, in ascending or descending order. Two different commands let you search and display occurrences; one works on indexed fields within files, the other in unindexed files.

The COUNT command will yield a total number of records meeting a specified criterion, and the SUM command performs addition on numeric fields. You can selectively copy files, records, or record structures, using scope modifiers and the FOR expression. The APPEND command can read data from another dBMAN file, a DIF file, or a delineated ASCII text file, and tack it to the end of your current file. The UPDATE command will make changes to specified records based on information contained in another file. You can also convert dBase II and III files to dBMAN by making some minor program changes.

To format printer output, define top, bottom, and left margins, lines per page, and headers and footers including page numbers. You can format up to 20 columns and generate detailed or summary reports. Text can be underlined or set in bold, and you can change the type size. (*dBMAN was reviewed by Ted Salamone on p. 85 in the September/October '87 issue of* AmigaWorld.)

Note: dBMAN version 5 is due out in early autumn.

Acquisition

Taurus-Impex / $299.95 Acquisition is a relational database with capacities beyond most Amiga configurations in the home. It boasts field capacities of 10 megabytes, a maximum of 10 million fields per record, and 100 million records per file for a total file size of one gigabyte. Files may contain IFF graphics.

The two-disk system offers an impressive assortment of utilities, which are separated into modules. At the heart of Acquisition is a user-interface language called Acom, a combination of BASIC and C that is similar to dBase III's Prism programming language, or Paradox's PAL. Using Acom and the 300-page manual, you should be able to customize almost every aspect of file creation, data entry, data manipulation, and reporting.

When building a database with the creating, pasting, and bridging editors, you can specify field names, ►



Aztec C's NEW Source Debugger Takes The Work Out Of Debugging!

Stop entering print statements and re-compiling over and over. Stop spending your time looking at assembly language and hex dumps. Stop agonizing over features you need but can't find . . . Start using Aztec C's NEW Source Debugger (SDB). It has all the features you expect and more!

SDB FEATURES

- Multiple task debugging
- Debug your code at the Source Level
- Set Breakpoints and Single Step by Source Line
- Access all Global and Local Variables by Name
- Evaluate and Print the Value of Any C Expression
- Displays all Structure Element Names and Values
- Assembly Language Debugger for intermixed routines
- Debug drivers
- User Control of Color-background and text
- Separate Color Windows for Source, Data and Commands
- Supports 1.2 and 1.3 Amiga resident libraries
- Supports 68010, 68020 and 68881 processors
- Re-usable command macros and procedures enables you to customize the debugging environment

And with Aztec C you get optimized C, support for scatter loaded and segmented programs, support for all floating point formats, and the clean, fast and compact code you need.

SDB Special through December 31, 1988

30 Day Satisfaction Guaranteed

Source Debugger (Reg $125.)	**ONLY $ 75.**
Aztec C68k/Am-p Professional System	**ONLY $199.**
Aztec C68k/Am-d Developer System	**ONLY $299.**
Library Source	**ONLY $300.**
Developer System with Source Debugger and Library Source (Reg $724)	**ONLY $474.**

COD, VISA, MC, Wire (domestic & intl.) & terms

Take Advantage of the Introductory Special / Call Today

1-800-221-0440 (outside NJ)

201/542-2121 (NJ and Outside U.S.)

Telex: 4995812MANX
Fax: 201/542-8386

Circle 31 on Reader Service card.

Aztec by MANX

1 Industrial Way, Eatontown, New Jersey 07724

Company List

Abacus
5370 52nd St. S.E.
Grand Rapids, MI 49508
616/698-0330

Eastern Telecom Inc.
9514 Brimton Drive
Orlando, FL 32817
407/657-4355

Equal Plus Inc.
1406 Camp Craft Rd., Suite 106
Austin, TX 78746
512/327-5484

Meggido Enterprises
PO Box 3020-191
Riverside, CA 92519
714/683-5666

Micro-Systems Software
distributed by Brown-Wagh Publishing
16795 Lark Ave., Suite 210
Los Gatos, CA 95030
408/395-3838
800/451-0900

The Other Guys
PO Box H
Logan, UT 84321
801/753-7620

Precision Software Ltd.
distributed by Progressive Peripherals and Software
464 Kalamath St.
Denver, CO 80204
303/825-4144

Software Visions Inc.
PO Box 3319
Framingham, MA 01701
617/875-1238

SoftWood Company
distributed by Brown-Wagh Publishing
16795 Lark Ave., Suite 210
Los Gatos, CA 95030
408/395-3838
800/451-0900

Taurus-Impex
distributed by
Haitex Resources
208 Carrollton Park, Suite 1207
Carrollton, TX 75006
214/241-8030

VersaSoft Corp.
4340 Almaden Expressway, Suite 250
San Jose, CA 95118
408/723-9044



length, type, and field streams (auto-exec files activated when the field is accessed), how information is to be shared among up to 16 files, and more complex system and relational pathways between files.

One module lets you customize data entry and editing formats, and simple one-file report generation formats. Another program handles more sophisticated report generation using text files. There is even a decimal/hex calculator module.

You can design macros and larger Acom programs to perform just about any type of search, sort, or manipulation imaginable, including 16 relational paths per file. Because the programs in the Acquisition system are not needed after they complete their functions, mathematical and Boolean searches and sorts are performed in RAM with great speed.

Report generation is done through a linking program using a text file. You can establish a tracing routine that determines which parts of the filing system are used in the report. Acquisition offers a nearly unlimited number of ways to access data. You can write your own data-manipulation and reporting programs using Acom, or you can access the database with the built-in reporting interface or your own BASIC and C programs.

Acquisition is highly sophisticated. To use it effectively, you must have not only programming experience, but also a good idea of exactly what you want your database to do. This is not a take-it-out-of-the-box-and-pop-it-in program for keeping the family holiday list. Acquisition is for the serious database programmer who needs raw horsepower and refined tools. (*Acquisition was reviewed by Al Willen on p. 82 in the November '87 issue of* AmigaWorld.)

Superbase Professional

Precision Software Ltd. / $349.95. Superbase Professional is a step beyond Superbase Personal. The limits of Superbase Professional are roughly the same as that of its older sibling, but there are differences. The Pro version has a forms editor and an integrated programming language called DML (Database Management Language). ►



Wise up to nightly savings online with GEnie.™

"GEnie has opened my eyes to what an online service can do for me. I thought I knew it all until I discovered GEnie's vast array of Special Interest Groups, offering thousands of software files, dynamic bulletin boards, lively discussions and "tips" from the experts. Not to mention services like Comp-u-store Online® shopping service, USA Today Decisionlines and access to Dow Jones News/Retrieval.® And those friendly people at GEnie really give a hoot about being helpful, day or night.

Compare GEnie for selection, services and price, night after night. It will open your eyes too. Only GEnie offers you so much online, for less."

P. M. Byrd

Services Available	Compare & Save	Pricing **			
		Registration Fee	Monthly Minimum	Non-prime Time Rates 300 baud	Non-prime Time Rates 1200 baud
Electronic Mail • CB • SIGs/User Groups • Travel • Shopping • Finance • Reference Professional • Leisure • Games • News	**GEnie†**	**$29.95**	**None**	**$5.00**	**$5.00**
	CompuServe	$39.95	None	$6.00	$12.50
	Other	$49.95	$10.00	$8.40	$10.80

**Get 2 Free Hours with Sign-Up.*

Still just $5 per hour. Get online today!

1. Have your major credit card or checking account number ready.
2. Set your modem for local echo (half duplex)—300 or 1200 baud.
3. Dial 1-800-638-8369. When connected, enter HHH
4. At the U#= prompt enter **XJM11762,GEnie** then RETURN.

Need help or more information? No modem yet? We can help. In U.S. or Canada call **1-800-638-9636** or write GEnie, 401 N. Washington St., Rockville, MD 20850.

We bring good things to life.

**Basic rates and services in effect 1/88 apply in U.S. only. †Non-prime time rates apply Mon.-Fri. 6PM-8AM local time and all day Sat., Sun., and nat'l. holidays. Subject to service availability. Some services offered on GEnie may include additional charges.
*$10 credit applies. Offer good for 30 days from sign-up.

Circle 111 on Reader Service card.

You create files as you would with Personal, except that there is an added "external" field type for graphics, sound, and text files. You can display IFF graphics on separate screens, play IFF sound files (speed controls let you adjust digitized sound files), and display text files with Superbase Pro's mini-text editor.

The program displays data in three ways: record, table, and form views. You can enter data in batch mode (which saves writing to disk until you are finished), and use queries (search criteria files that can be saved to disk) to select a range of records to update or even edit automatically.

Sorts are done on an indexing system as file records are loaded. Using an icon-based requester window or DML, you can create complex, multilevel search criteria and filters. DML is a very powerful addition to Superbase. Similar to BASIC, with functions such as DIM, REM, FOR/NEXT, and GOSUB, DML will execute single command lines immediately (like command mode in BASIC) or allow you to write entire programs. There are 120 DML statements and functions; you can do anything in the program that could be done from a menu. In addition, you can customize menus, requesters, and dialog boxes. Programs written in DML can be saved in Superbase format, ASCII, or encrypted files.



A simple report-writer utility will "compile" your form into DML, but you can design specific reports yourself, too. A special editor allows you to create custom forms of up to three pages, 66 lines each, 80 characters per line. You can combine graphics, colors, patterns, boxes, lines, text, and, of course, filtered data on a single page. Creating a form is a click-and-drag process with a hierarchical layout logic (text supercedes patterned background, data supercedes text, and so forth).

Superbase Pro allows you to share information from one file to another while modifying other files automatically. With the addition of a forms editor and DML, Superbase Professional is one of the most powerful databases available. While easy to learn, it is a sophisticated program and database language that takes a bit of study. (*Superbase Professional was reviewed by Mark L. Van Name and Bill Catchings on p. 56 in the June '88 issue of* AmigaWorld.)

The terra cognita of database software extends across a wide range, both in terms of functionality and in terms of price. If you need to interrelate numerous and lengthy files for a complex business, you'll surely want a relational database manager to make your life easier. For simple home use, however, such a program would likely be a waste of money. Yet even among the more simple database programs and file managers, there is great disparity: Do you just want to keep your phone list on disk, or would you like to catalog your assets and have room to grow, too? ■

Amiga users ...

We make your life easier!

BeckerText Amiga

"...packages almost the same range of features (as WordPerfect) into a much smaller package"
Sentry May, 1988

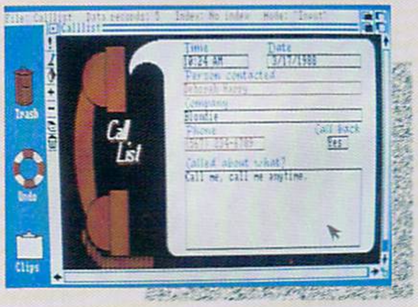


Here's a professional wordprocessor with features for both the beginner and the experienced user: easy to follow drop down menus, handy "shortcut" keys or fully user dependable function keys. BeckerText has advanced features such as automatic table of contents and indexes, multiple column printout with graphics, powerful fill-in-the forms capability includes both online "as you type" and expandable ElectraSpell spell checkers. Works with virtually any dot matrix, letter quality or laser printer. **$150.00**

TextPro Amiga—A full featured wordprocessor for users who may not need the professional features of BeckerText. **$79.95**

DataRetrieve Amiga

"DataRetrieve is THE database for the Amiga"
PLINK March, 1988

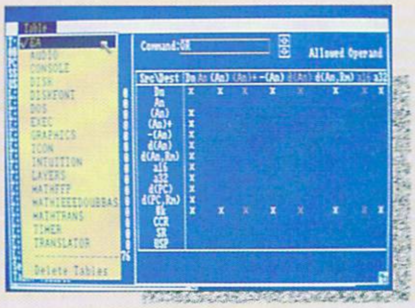


A simple-to-use, yet powerful data manager. The intuitive, quick setup will have you up and running in no time at all. You can customize the screen with different fonts, styles, colors and graphics.
And DataRetrieve has powerful searching, indexing and reporting features. We mean it when we say that data management couldn't be easier. **$79.95**

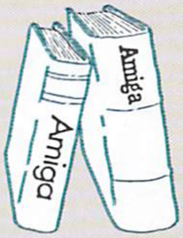
Available September

DataRetrieve Professional—Adds relational database capabilities and complete programming language for creating customized applications. Introductory price $195 until September 1st. **$295.00**

AssemPro Amiga



AssemPro has received rave reviews from machine language programmers in the know. It's a complete developer's package with a powerful editor, fast two-pass macro assembler with interactive error correction, advanced debugger with single-step and breakpoint capabilities, helpful tools such as disassembler and reassembler, 68010 support, complete online HELP and extensive library support. **$99.95**



Available Soon!

Amiga books from Abacus

Amiga for Beginners	$16.95
AmigaBASIC - Inside and Out	$24.95
Amiga Tricks & Tips	$19.95
Amiga Machine Language	$19.95
Amiga DOS Inside & Out	$19.95
Amiga System Prog. Guide	$34.95

YES! send me a free catalog of Amiga software and books

Qty.	Product	Price	Totals

In the USA add $4.00 for shipping. Outside USA add $12.00 per item, MI residents include 4% sales tax.

Total amount due ______

Payment: MC VISA Check Money Order ______ Exp. Date

Name: ______
Address: ______
City: ______
State: ______ Zip: ______ Tele: ______

Abacus

Dept. L7 • 5370 52nd Street SE • Grand Rapids, MI 49508

Orders only **1-800-451-4319**. For Technical assistance 1-616-698-0330 • Facsimile 1-616-698-0325 • Telex 709-101

Circle 124 on Reader Service card.



THE AMIGA HOME VIDEO COMPANION

A step-by-step, how-to guide for using your Amiga to spice up your home movies with snappy titling and some simple, yet impressive video effects.

WHEN WAS THE last time you viewed your home movies and wondered which relatives these were in the footage or what the name of the place you visited was on that vacation you took four years ago? Wouldn't it be nice to be able to go back and put that information on the videotape permanently? Learning some basic video-titling procedures can solve your problem and, in the future, allow you to create titles as you complete your home video productions.

In addition, mastering some equally basic video-graphics techniques can open up a host of creative home movie-making opportunities. Adding special effects—such as "transporting" people in and out of scenes, setting up "force fields" to separate things from their environments, or even landing spaceships in otherwise ordinary scenes—will give you the kind of cinematographical options you thought only people like Steven Spielberg could enjoy.

All that is required are a video camera, a VCR, your Amiga (with a genlock), and the appropriate software.

VIDEO TITLING

A first step in spicing up your home movies is to provide titling by means of a character generator (CG)—a device that creates text and places it in the form of titling (and other information) onto video. You can transform your Amiga into a character generator with a number of excellent programs, such as Pro Video CG1 and Pro Video Plus (PVS Publishing), Video Titler (Aegis Development), TV*Text and TV*Show (Brown-Wagh Publishing), and, for sophisticated 3-D titling, VideoScape 3-D (Aegis). These represent only a small selection of what's available. (For a more complete listing, see "Videot's Delight," p. 23, in the March '88 issue of *AmigaWorld*.)

Casting Your Characters

Here are some tips on using a character generator for the first time:

- Watch your home-produced videotape all of the way through and make notes on what you want your titling to "say" and where on the screen it should be placed with respect to spacing and readability.
- Do not choose a font that is difficult to read.
- Do not choose a font color that clashes with videotaped subjects and/or material.
- Do not clutter the screen with CG information.
- When you display your information, do not leave it on screen longer than it takes for you to read it twice.

Because videotape, unlike film, does not permit multiple exposures, you cannot simply reexpose the film in the camera to produce titles. You must add the titles while you are copying from one VCR to another. To achieve this, you must connect the composite video output of the first VCR to the composite ►

By Wayland W. Strickland

ILLUSTRATED BY JOHN CRAIG

video input of a genlock, and then connect the composite video output of the genlock to the composite video input of the second VCR. Finally, connect your monitor, or television, to the second VCR's composite video output (if using a monitor) or RF output (if using a television). (This may seem complicated, but if you consult Figure 1, you will see that this scheme of connecting the components is not as difficult as it sounds.)

Before we move on, a brief discussion of the genlock component mentioned above is in order. In addition, we will try to explain the differences in capabilities and features among genlocks, as well as the specialized "video loop-through" feature found only in select models of genlocks.

A genlock synchronizes the video signals between a VCR or camera and the Amiga, permitting video created on the Amiga to be overlaid on top of video coming from the VCR or camera. Thus, the background video (color 0 in the Amiga palette) always originates from your external source (the VCR or camera), while your Amiga always generates the foreground video.

Genlocks come in two basic configurations. The less expensive units, such as Mimetics' AmiGen and Commodore's A1300, do not allow the Amiga's graphics to be "faded in" or "faded out." The graphics are simply "full up" or "full on" all the time. More expensive genlocks, such as Digital Creations' SuperGen and GlennLoc's RM-2, do allow you to "dissolve" computer-generated graphics over external video. SciTech's GenKey, although priced comparably with SuperGen, also does not allow for fade-ins and fade-outs.

Both GenKey and SuperGen do, however, have what is known as a "video loop-through." This permits another monitor or TV display to use the same video source as the genlock. Thus, you can observe your source video on one display while watching, on another monitor (connected to VCR #2), your source video with graphics overlaid. In this way you can separate the two images in your mind, stopping to adjust and fine tune your productions as you go.

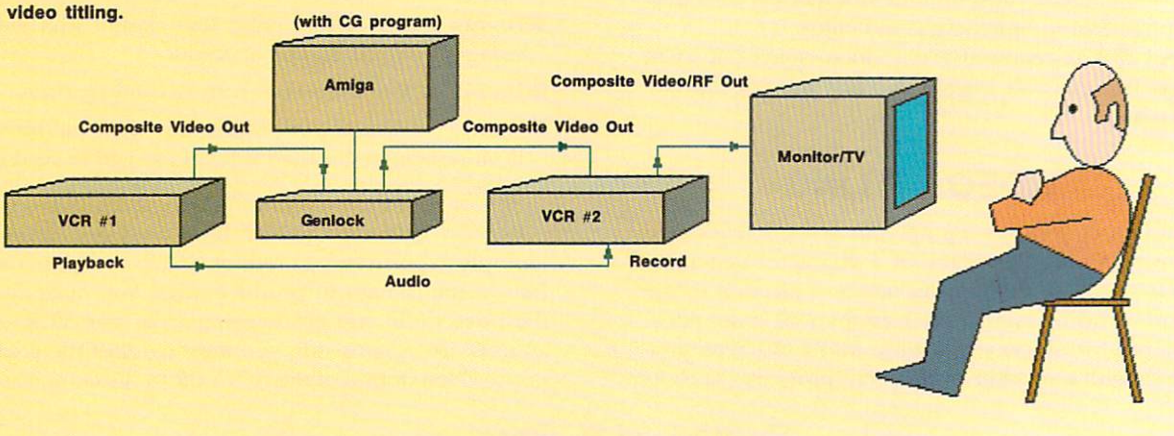
If you do not have another monitor to attach to this video loop-through connector, then your video may look too "hot" (contrast and brightness are too high, resulting in a "bright" picture). To solve this problem, first check your genlock manual to see if the genlock has a built-in switch that will correct for this brightness problem. If not, visit your local electronics store and purchase a 75-ohm video terminating resistor and connect it to the video loop-through connector.

Roll Those Credits

The next step is to power up your computer and load the CG program of your choice. Select a font, font size, and color, and size and direction of the drop shadow. Then compose your pages in the order in which you are going to record them onto your videotape. Many of the character-generator programs permit fancy ways of displaying the information on the screen, such as slides, wipes, checkerboard patterns, and so forth. Select any special screen transitions desired and, depending on the program, save the information for use when you copy the "home movie."

Insert the master videotape (the one you want to add titling to) into VCR #1 and insert a blank videotape into VCR #2. You should note that when copying a videotape, there will always be a slight loss in picture and sound quality. This loss, however, can be minimized by recording the original and the duplicate in the fastest speed on your VCR (SP for VHS, BII for BETA). A good habit to get into with your initial productions is to make a test recording before dubbing the entire videotape. Place VCR #1 (source machine) into play mode while simultaneously placing VCR #2 (record machine) into record mode. Clear the computer screen in your CG program or go to a

Figure 1. Component setup for video titling.



blank page and try your test recording. If the test recording turned out favorably, you are ready to begin dubbing. If it did not record properly, check to see that the cables are firmly connected, the genlock is plugged in, and your computer is on.

Using the notes you made from an earlier screening, watch the monitor (or television) as the part of the videotape you wish to add titling over is shown. Depending on your CG program, initiate the proper command sequence to display the titling information. Repeat this operation until you finish adding all of the titling you wish to your videotape.

ADVANCED VIDEO EFFECTS

With the same set of components used for titling, you can put your Amiga to work creating a repertoire of special effects for your home video productions. For instance, you can transport yourself and a friend to faraway places or planets, create a force field (to keep away monsters, in-laws, or presidential aspirants), or land a spaceship in your backyard. No longer are these well-known special effects limited to professionals. How, you say, can all these be simulated? We'll try to provide some explanations, and advice, concerning the creation of a few of your favorite effects.

Getting Away From It All: The Transporter Effect

The transporter effect has been used in a number of television programs over the years. Its original method of creation involved dropping aluminum dust through the beam of a high-intensity light as the subject was being photographed. An optical printer was then used to matte the effect on top of the person or object to be "transported." You can accomplish this effect more simply by using almost any paint program with the ability to cycle colors (such as DeluxePaint II), a video camera, a VCR, and a monitor.

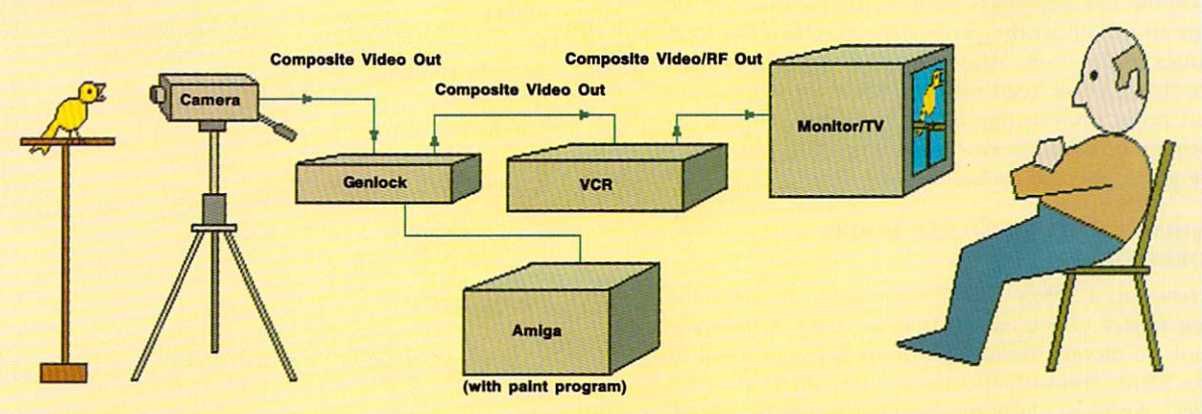
Choose an object (or person) to "transport" and set up your video camera so that your object is aligned in the center of the screen. Connect your video camera's composite video output to the composite video input of the genlock. (Note that because some older home video cameras and camcorders are not equipped with a composite video output, you may need to purchase a power supply for your specific model of camera that will furnish you with such an output.) Connect the composite video output of the genlock to the composite video input of the VCR. (See Figure 2 for a diagram of the setup described above.)

Turn on the power to your Amiga and load the paint program (DeluxePaint II, in this example). When the prompt appears, select interlace mode and then select palette from the project menu. The best colors for the transporter effect are blue or yellow-gold. (In our example, we will use gold.)

Select the lightest color of gold in the palette and copy it to the top of the third column and the bottom of the fourth column, proceeding from left to right. Select the darkest color of gold and copy it to the bottom of the third column and the top of the fourth column. Use the pointer to select the light gold at the top of the third column. Select the "spread" icon and touch the dark gold at the bottom of the third column. Repeat this step for the fourth column. You should now have a range of gold that begins with a light shade, gradually darkens, and then lightens again.

To make the transporter effect look real, you must cycle the complete range of gold shades. To accomplish this, touch the light-gold shade at the top of the third column, select the "range" icon, and touch the light-gold shade at the bottom of the fourth column. Now select the cycle speed—normally about one-half to three-quarters on is fast enough to appear real. Exit the palette menu and then trace the outline of the object that you will be transporting. When you ►

Figure 2. Component setup for transporter effect.



finish tracing the outline, turn on the dithering mode by pressing the right button on your mouse and select the paint can. There are three dithering types you can select. The first is identified by an icon box that is an up/down arrow; this is the icon we will use. (For more complex and interesting effects, you might experiment with the other two icons.) Move the slider all the way to the right so that the individual colors are thoroughly mixed.

The next step is to outline the object you wish to make disappear with one of the colors in the range. Using the paint can, fill in the outline completely (which may take a few moments). Now press the tab key to begin the cycling effect. Depending on your genlock, you can either dissolve the effect over the object or "cut" the effect (for a sudden appearance) on the object. To "cut" back and forth between the effect and the object, use the J key. This will swap the current page in DeluxePaint II with the background page. If your genlock will perform a dissolve, this is the best way to achieve this effect.

Finally, you are ready to "transport" your object. Insert a blank video cassette into your VCR and record the object without the effect, then record the effect overlaid on the object. While the effect is still being displayed, pause the VCR. Move the object out of the camera's frame of view, press PAUSE to begin recording again, and remove the effect (either by dissolving or cutting, as discussed above). Rewind the videotape, play it back, and see how easy it is to make an object transport to any imagined destination.

If you've used your VCR for any length of time, you are no doubt aware of the "glitch" that occurs every time you pause the VCR or perform an edit. This happens because the tape is not at the proper speed to start recording and the video head did not erase part of the old recording before starting with the new. To avoid this and other problems, VCR manufacturers began incorporating into recent units a feature called a flying erase head. When making an edit on units so equipped, the VCR will initiate what is called a pre-roll. The VCR will back the tape up about five seconds to allow sufficient time for the tape to get up to the proper speed. Once the VCR comes to the frame where the new video is to start, the flying erase head will erase the old video from that point on, creating blank space for the new information to be placed on the tape. This eliminates the glitch and the problem.

Behind Partially-Closed Doors: Force Fields

Setting up a "force field" is similar to creating the transporter effect, except that the former does not apply to merely the outline of an object; a room or any "field" you wish affected can be subjected to this effect. An ideal place, for instance, would be a doorway where you would have someone stand behind the area in which the force field will exist. (For the sake of continuity, we will use the doorway example throughout the explanation.) Position the video camera directly in front of the door so that the camera sits approximately eight to ten feet from the physical doorway.

Set up your color palette as described earlier for the transporter effect and outline the interior of the doorway with one or more of the colors in the range. Use the airbrush to fill in the outline, leaving some space for the camera to "see through" in order to permit the viewing of persons present behind the effect (as if, for instance, you are in a type of holding cell with the force field keeping you imprisoned while a "guard" is outside the cell door). Again, depending on your genlock, you can either dissolve this effect in and out (fade in about half way—a "ghost effect" is most effective), or use the J key to cut the effect on and off.

Close Encounters: The Spaceship Landing Effect

This effect requires a bit of preproduction planning and also requires a two-dimensional animation program, such as Aegis Animator or DeluxeVideo Construction Set, or a solid-object animation program, such as VideoScape 3-D (which we will use for our example) or Animate 3-D. If you use a 3-D program, you need not worry about creating your spacecraft; with VideoScape 3-D, for example, simply use the "infinite loop ship" (denoted in the file listing as "InfLoopShip") on the program's object disk. You must plot the course of the spacecraft —how the ship enters, lands, and exits the scene—and set the camera angle and the position of the light source before creating the effect.

The spacecraft will enter from the upper-right corner of the screen, move to the center, then land. After a slight pause, the craft will rise, turn away, and rocket off into the distance. The following text file can be entered into a word processor and saved into the motion directory of a backup of the object disk:

```
3DM1
6
40 8 25 190 0 0
0
5 8 20 270 0 0
23
0 0 20 270 0 0
22
0 0 20 270 0 0
-10
0 5 25 300 0 0
20
-40 10 35 300 0 0
20
```

The camera will be positioned at the origin. The ►


A new release from Lattice
who brought you
the better C:
IT CAME FROM THE C
BORIS
AMIGA
STARRING
LATTICE C++!
★ OBJECT ORIENTED. A FIRST FOR YOUR OBJECT ORIENTED AMIGA!
★ LIFE SPRINGS FROM YOUR SCREEN WITH THIS HIGHER LEVEL OF PROGRAMMING!
★ PRODUCE MORE RELIABLE PROGRAMS WITH FEWER KEYSTROKES & LESS EFFORT!
★ HIDE YOUR DATA TO PROTECT IT!
★ BUILD ONE TYPE ON ANOTHER TYPE!
★ DEFINE A GENERIC THEN REDESIGN SPECIFICS WITHOUT MAKING THE PROGRAM FAIL!
★ TRUE DATA ABSTRACTION TO AID IN PORTABILITY AND PROGRAM SIMPLICITY!
★ OVERLOAD OPERATORS AND FUNCTIONS! COMPLEX ARITHMETIC LOOKS LIKE PART OF THE LANGUAGE!
Now at a software supplier near you!
Lattice
Subsidiary of SAS Institute Inc.
Lattice, Incorporated
2500 S. Highland Avenue
Lombard, IL 60148
Phone: 800/533-3577
In Illinois: 312/916-1600
Lattice is a registered trademark of Lattice, Incorporated.
Amiga is a trademark of Commodore-Amiga, Inc.
Circle 23 on Reader Service card.

Product Information

AmiGen
Mimetics Corporation
PO Box 1560
Cupertino, CA 95015-1560
408/741-0117
$179

Animate 3-D
Byte by Byte
Arboretum Plaza II
9442 Capitol of Texas Hwy. N.
Suite 150
Austin, TX 78759
512/343-4357
$150
One megabyte required

Commodore 1300 Genlock
Commodore Business Machines
1200 Wilson Dr.
West Chester, PA 19380
215/431-9100
$299.95

DeluxePaint II
Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
415/571-7171
$129.95
512K required

DeluxeVideo Construction Set
Electronic Arts
(see address above)
$129.95
512K required

GenKey
SciTech Corporation
1450 Northwest 78th Ave.
Miami, FL 33126
305/591-1620
$760

Pro Video CG1
PVS Publishing
3800 Botticelli, Suite 40
Lake Oswego, OR 97035
503/636-8677
$199.95
512K required

Pro Video Plus
PVS Publishing
(see address above)
$299.95
Two megabytes required

RM-2
GlennLoc Corporation
distributed by Wollner Assoc.
3306 Horseman Lane
Falls Church, VA 22042
703/533-1236
$2500

SuperGen
Digital Creations
1333 Howe Ave., Suite 208
Sacramento, CA 95825
916/344-4825
$749.95

TV*Show
Brown-Wagh Publishing
16795 Lark Ave., Suite 210
Los Gatos, CA 95030
408/395-3838
$99.95
One megabyte required

TV*Text
Brown-Wagh Publishing
(see address above)
$99.95
512K required

VideoScape 3-D
Aegis Development
2210 Wilshire Blvd., Suite 277
Santa Monica, CA 90403
213/392-9972
$199.95
512K required

VideoTitler
Aegis Development
(see address above)
$149.95
512K required

script file for these movements should be saved into the camera directory as follows:

```
3DC1
2
0 0 0 0 0 0
0
0 0 0 0 0 0
95
```

After loading the information into the word processor, load VideoScape 3-D—the object, motion, and camera files. The light source defaults to the position of "shining" straight down onto the scene. Insert a blank, formatted disk into one of your drives and select "Begin Anim Recording" from the record menu. A requester will display asking you to select the drive in which you wish to save the anim, along with a file name. Select the drive that you inserted the disk into and press the "Begin Animation" button. (Note that the compilation will take about 25 minutes to conclude.)

After the animation has been compiled, the control window will reappear, at which time you should turn off the anim recording. Exit VideoScape 3-D and then load the CLI from the window and type "playanim [file.name]." After the animation loads from the disk, type "2" to designate the speed of the animation, and then type "2" again to represent the number of replications of the action.

Once you are satisfied with the presentation of your animation, position your video camera at the scene (your backyard in this case) and connect the composite video output of the camera to the composite video input of the genlock. Connect the composite video output of the genlock to the composite video input of your VCR. Set your VCR in record mode and press Return on the computer keyboard to initiate the animation. Once the animation has played through completely, press Return twice more to repeat the action. Stop the recording of the videotape and view your masterpiece. Now you have documented proof of a "close encounter" that took place in your own backyard! If you wish, you can add sound effects to further enhance the realism of the scene.

These examples demonstrate only a minute sampling of the astounding array of video effects you can create with just a video camera, VCR, genlock, and your Amiga (with appropriate software). Your genlock and your software define the range of possibilities open to you; your imagination takes over from there. ■

Wayland W. Strickland is a producer, director, writer, and graphic designer of television presentations for Chameleon Video Productions in Orlando, Florida. Write to him c/o AmigaWorld *Editorial Department, 80 Elm Street, Peterborough, NH 03458.*

Amiga Makes It Possible . . .

SuperGen Makes it Happen!

Desktop Video.

Studio quality video production on a desktop. The Amiga makes it possible. The **SuperGen Genlock** makes it happen!

Video Professionals understand the power the Amiga Computer brings to the industry and the potential it has for enhancing their work. With its revolutionary hi-resolution graphics and processing power, the Amiga represents a sophisticated video production solution.

The SuperGen Genlock and overlay device is the link between the Amiga's video potential and your own video productions. SuperGen allows you to create and produce **professional broadcast quality video** with special effect graphics and titles created on your Amiga.

Some SuperGen™ features:

True Broadcast quality video output.
Real RS-170A. No ifs, ands or buts! Accurately locks to non-time base corrected signals such as VCR output. Very accurate RGB encoder for true Amiga graphic colors.

Two independent fade controls.
For external video through background and external video through graphics. Slider or software controllable.

Selectable Auto-Fade mode.
Amiga graphics black level fade. The black level of the Amiga graphics determine the fade level.

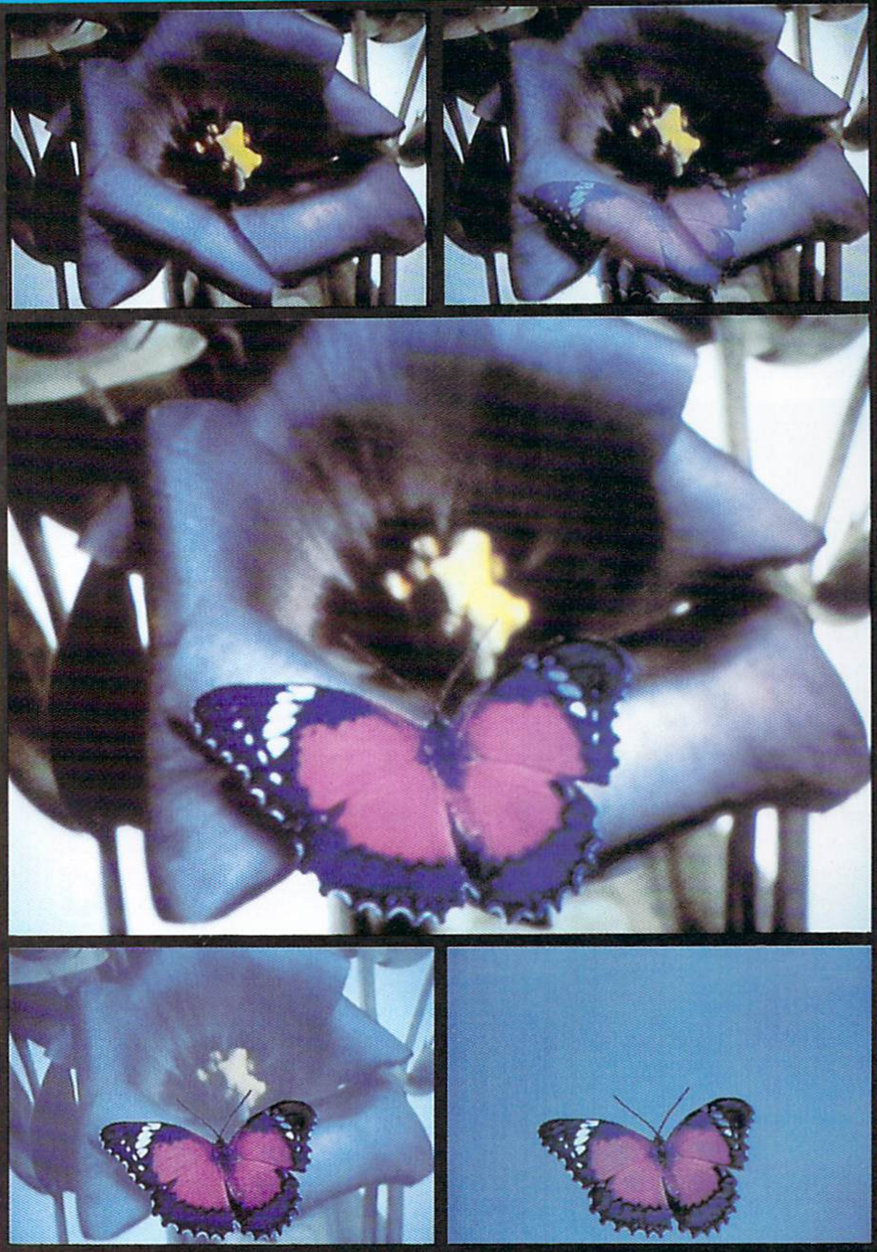
Switchable 3.58Mhz Notch filter.
helps eliminate chroma artifacts.

Selectable blanking.
Internal or external.

BNC Connectors.

A500, 1000, and 2000 compatable.

SuperGen™ $749.95
Professional Genlock
by Progressive Image Technology



Actual un-retouched photographs of composite video screens.
The flower is live video, the Butterfly is created on the Amiga.
SuperGen is overlaying the Butterfly onto the flower.
The top sequence shows Amiga graphics fading in.
The bottom sequence shows the Amiga background fading in.

To order or for more information Call:

(916) 344-4825
1333 Howe Ave.
Suite 208
Sacramento, CA 95825

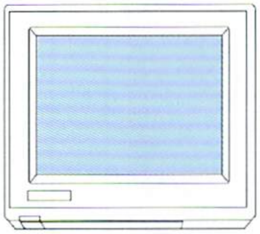
Digital Creations

The Big Picture



By David T. McClellan

Using SuperBitMap windows to scroll oversized images can cut some major graphics programming problems down to size.



KEEPING TRACK OF all the code needed to display oversized graphics in simple windows turns you into a juggler instead of a programmer. SuperBitMap windows condense the many image-related variables into a manageable ball, tossing the work of monitoring and refreshing the display to Intuition. With an understanding of Intuition structures and SuperBitMap windows, you can easily write code that lets you scroll an oversized image up, down, and all around so you can see the hidden parts.

While you still have to allocate and initialize the bitmaps for your windows and screens, with SuperBitMaps, Intuition remembers which sections of an image are obscured by other windows, which sections are beyond the screen's boundaries, and the pieces of the image that must be copied back to the screen should the user shift the image. The accompanying program listing, BigPict (see Listing 1), demonstrates these techniques. An IFF/ILBM reader, BigPict displays and scrolls larger-than-screen-size images from paint programs. I wrote the program in Benchmark Modula-2, but, if you are more comfortable speaking C, translating it should not be too difficult.

In and Out the Windows

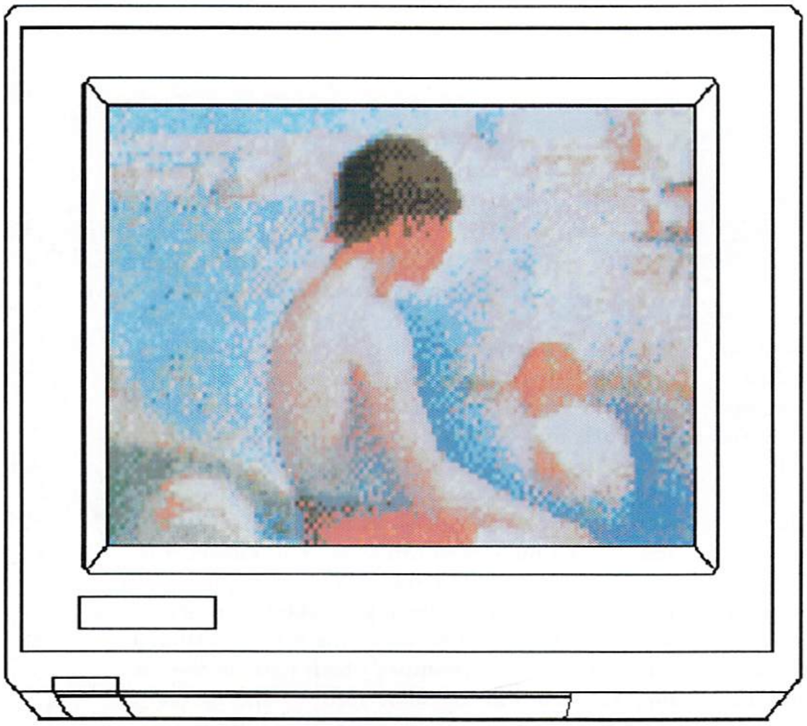
To keep track of the images and system requirements of your screens and windows while displaying a picture, your program must call several data structures from the ROM Kernel drawing routines. Each window and screen has a bitmap, a large area of memory that Intuition and your program modify when drawing. The height and width of the bitmap limit the dimensions of the picture. The number of bitplanes (also called rasters) deep the bitmap is determines how many colors are in your picture. (For more on how bitplanes determine color, see "How the Amiga Creates a Display," p. 30, in the March/April '86 issue of *AmigaWorld*.) Your program's Window and Screen structures use the system structure RastPorts to keep information about the bitmap—current pen position and draw color, fill pattern, sprite list, and so on. They also call the ViewPort structure for a description of the portion of the bitmap that the screen can show. The ViewPort is always as wide as the screen (320 or 640 pixels), but you can set the vertical size. The Layer structure describes the portions of the bitmap visible in the window and determines which parts of the bitmap you can draw in (some sections may be obscured by other windows). All of these structures must reside in chip memory, a precious resource when you work with large pictures. A 1024 x 1024 eight-color picture consumes over 384K.

If you draw images smaller than the window, your program needs to pass the RastPort's pointer to the drawing primitives, the operating system's lowest-level drawing routines. Images larger than your display need a little more monitoring. To change the portion of the graphic the program shows, you have to tell the drawing routines what to display through the Layer and the ViewPort structures. Remember, as you draw, Intuition keeps a copy of the artwork on display, but it does not know when the underlying bitmap has been changed or shifted; you have to tell it.

Layered Refreshment

To make some of what the demo does easier to program, I used Intuition functions to build my ►

screens and windows (which automatically set up the ViewPorts, RastPorts, and Layer structures for me). Intuition supplies noninterlaced (200 pixels high) and interlaced (400 high) screens in lo-res (320 pixels wide) and hi-res (640 wide). The windows you render on a screen, from very small to as large as the screen, inherit the screen's type. Each program running under Intuition may have one or more windows tied to it. Because windows can overlap, Intuition uses the ROM Kernel Layers routines



and the Window type to delimit the areas of a window in which you can draw.

The amount of work Intuition and your program have to do to fix the imagery if a previously obscured area is revealed determines the window's type. For Simple Refresh windows, Intuition clears the uncovered rectangle and tells your program what needs fixing. For Smart Refresh windows, Intuition keeps a copy of covered areas and replaces newly revealed pieces as needed. In both cases, your program cannot draw into the covered areas until they are displayed again. For the SuperBitMap window used in the demo, your program must allocate and initialize the bitmaps for the window and screen, but it can draw anywhere on the bitmap and never has to worry about refreshing it. Intuition will copy whatever pieces it needs from your bitmap to its display.

In addition to keeping track of windows and overlaying areas, the Layers library routines and the Layer structure control the part of the bitmap that is visible if the bitmap is larger than the screen. You can use the ScrollLayer function to move the window around over that bitmap to display different chunks of it, similar to viewing a microfiche.

Intuition also provides an input medium for the program, via the mouse and keyboard. The mouse indicates positions and clicks gadgets and menu items; the keyboard sends either raw or vanilla keystrokes. Each input, whether click or keystroke, is sent to the program as a message via the window's IDCMP port. When you set up the Window structure in your program, you specify message flags, telling Intuition the kinds of messages to which the program will listen.

RawKey events send a message to the program when a key is pressed and another when the key is released. The messages consist of an escape code signaling the position of the key and a number identifying the key. These key numbers are assigned to each key based on the System Default Console Key Mapping table, while vanilla keys give you simply the ASCII value corresponding to the key. I used RawKeys in BigPict because their dual message system is the best way for the program to recognize cursor keys and shift-key combinations.

Each window can have gadgets. The most familiar gadget, the only one BigPict uses, is the button-like close gadget in the upper-left corner of a window. When you click on the close gadget, Intuition sends a close message to the program, and it shuts down, allowing you to exit.

With Simple Refresh, Smart Refresh, and SuperBitMap windows, Intuition draws its gadgets right on the bitmap, positioning a drag bar and close buttons at the top, the resizing gadget at the bottom, and so on. If you want only the title bar displayed, you can set the Borderless flag in the Window structure (about 10 pixels high across the top of the screen). So, if your program wants to use the close gadget and title bar, it has to leave space in the image for Intuition to display them. If you scroll the image, the title bar and close gadget will disappear. Calling RefreshWindowFrame will draw the new bar into the scrolled image, but will leave the new title bar in the middle of the picture when you scroll back to the top. To solve the problem, set the GimmeZeroZero window flag, which tells Intuition to allocate another separate layer for its window accompaniments. With GimmeZeroZero, the title bar sits on the image like a plastic overlay, letting the bitmap scroll underneath it. You pay for the solution with memory. A 1024 × 1024 by eight-color picture with a 320 × 200-pixel display is a tight fit.

GRAPHIC LANGUAGE

IFF ILBM files are the InterLeaved BitMap form of the Interchange File Format, the standard for ►

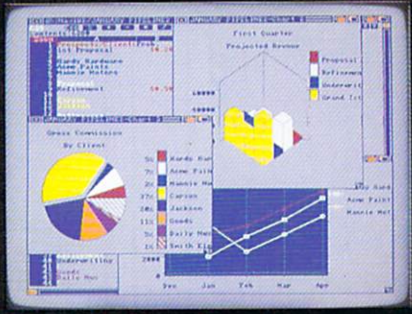
The CRITICS CHOICE™





Kind Words™

- Pull-Down Menus
- 90,000-Word Spell Checker
- Import Any Graphic File or "Brush" from 4, 8 or 16 Colors
- Full Graphic Cropping, Sizing and True What-You-See-Is-What-You-Get, Including:
- Boldface, Underline, Italics, Superscripts, Subscripts
- Multiple Size Fonts
- Multiple Font Styles Including Symbols
- Compatible With All Amiga Printer Drivers Including New Workbench 1.3
- Mail Merge



Maxiplan 500™

- 512 Columns by 32,760 Rows
- Named Ranges
- Spoken and Written Cell Notes
- Over 70 Built-in Functions
- Linking of Worksheets
- Password Protection
- Conditional Cell Formatting
- Lotus 1-2-3 Import Capability
- 8 Charts per Worksheet
- Chart Styles Include: Exploding Pie, 3D Bar, XY Scatter, and More
- Two-way Dynamic Linkage of Data and Charts
- IFF File Format for Export to Paint Programs



Microfiche Filer™

- Design Customized Forms
- Data Stored as 2-Dimensional Sheet of Text and Pictures
- Can Display Many Pictures At Once
- Easy to Learn and Use
- Easily "Personalized" Choose Workbench vs. CLI
- Choose Sorting Styles
- Sorts on Any or All Fields
- Intuitive Mouse Operations
- Prints Forms and Pictures
- Select Records Using Full Logical Expressions
- Unlimited Number of Fields per Record
- All Fields Are Variable Length

One for All.

At long last, the three most powerful productivity software programs for the Amiga® are available in a single economical package the Critics' Choice™ Productivity Bundle. This combination of the three most popular productivity programs provides simple, one-stop shopping for all Amiga owners.

Each of the three programs contained in the Critics' Choice,—Kind Words™ wordprocessor, Maxiplan 500™ spreadsheet, and Microfiche Filer™ database — has been heralded by end users, magazine reviewers and dealers as the most outstanding product in its respective category. And now they all work together as a powerful, integrated system. You can have all three applications on the screen at the same time, and move instantly from one to another. What's more, you can combine work done in one program with work done in any other.

And All for One.

Purchased individually, these programs cost almost $350. But together, in the Critics' Choice bundle, all three programs are available for one low price of $249.95 — a savings of almost $100! So visit your local Amiga dealer for a demonstration of the three finest Amiga productivity programs available today, or call (800) 527-7014 for the name of the nearest Critics' Choice dealer.

THE CRITICS' CHOICE™

3135 South State Street
Ann Arbor, Michigan 48108
Telephone (313) 665-5540

The Critics' Choice productivity bundle is only available for a limited time. For a full demonstration of Critics' Choice, visit your local Amiga dealer. To obtain the name of your nearest dealer, call (800) 527-7014 (in Massachusetts call (617) 875-1238, or for more information call (213) 427-1227.

Circle 60 on Reader Service card.

Amiga graphics. An IFF ILBM file contains an encoded form of the bitmap on which the picture was originally drawn (including the color palette and size), so that any IFF-compatible program can reconstruct the image. An option for the Benchmark Modula-2 compiler, the IFF and Image Resource Library ($99) includes a procedure that accepts pointers to an IFF file, then checks the file, allocates the bitplanes for the bitmap, and reads in the image and its header (color information and such). Because incorporating the routine was easier than writing my own code, I used the routine in my demo program.

BigPict loads an IFF ILBM picture that is larger than the screen, and lets you scroll around with the arrow keys. The main program, BigPict, handles user interaction and the details of scrolling. It calls two procedures: DrawIt, to put an image on the screen, and DrawCleanup, to close up and deallocate resources when it's time to quit.



BigPict in Action

The main program, BigPict, starts up by calling DrawIt (see the listing's DrawItIFF module), which checks for errors, opens the IFF file, allocates a BitMap descriptor (but not the memory needed) and then calls ReadPicture to load the image. A Benchmark library routine, ReadPicture, scans the IFF ILBM header to determine the height, width, and depth of the image, allocates the number of rasters it will occupy, and loads it into memory. To inform DrawIt of the image's size and the colors it uses, ReadPicture stores some of the header information in the IBLMFrame structure provided by DrawIt. When ReadPicture returns, DrawIt allocates a 320 × 200 screen. DrawIt takes the depth (number of bitplanes) from the ILBM header derived by ReadPicture, reads the color set from the ILBMFrame struct, and loads the values into the Screen structure's color set. At that point it initializes a NewScreen structure and creates a screen by calling OpenScreen( ). BigPict then initializes the NewWindow structure for the display window. Setting the Flags field to WindowClose, Borderless, Activate, GimmeZeroZero, and SuperBitMap gives you a borderless window (title bar only) with a close gadget. The window becomes active as soon as you open it. Set the IDCMPFlags (the flags telling Intuition what kinds of messages the program will recognize) to CloseWindow and RawKey. As the code trundles along, it remembers what it has done so that it can call the cleanup routine (DrawCleanup) to deallocate all the assigned resources and exit the program at several critical points.

When DrawIt finishes, it returns control to BigPict's main program. BigPict sets the initial position-tracker variables (specifying the position of the window's upper-left corner) that it shares with its TryMove procedure, then waits for messages from Intuition. Messages come along the normal route—the Amiga message system sends message events to a port set up by the main program. In this case, when you create the new window, Intuition attaches the message port UserPort to it. Each message port you create has a signal bit allocated to it. Through the Wait call, BigPict tells AmigaDOS it will not continue to another task until it gets a signal with the specified bit.

Once the program receives the signal that there is at least one message waiting, BigPict captures the message using GetMsg( ). BigPict extracts the message class and associated message code from each Intuition message, then uses ReplyMsg to inform Intuition it is done with its message. Next the program checks for a Closewindow message. If BigPict receives one, the program calls DrawCleanup and quits; otherwise it looks for keystrokes.

The type of keystroke (arrow-key presses, shift-key presses and releases, and the Help-key press) determines the program's action. The arrow keys signal that the user is attempting to move the image in the direction of the key's arrow. The arrow key alone calls for a one-pixel move; an arrow-key and shift-key combination signals a jump of ten pixels. When the user press a shift key, BigPict increments a shift counter; when the key is released, the shift counter is decremented. The Help key provides a quick way to move the image back to its upper-left corner. ►

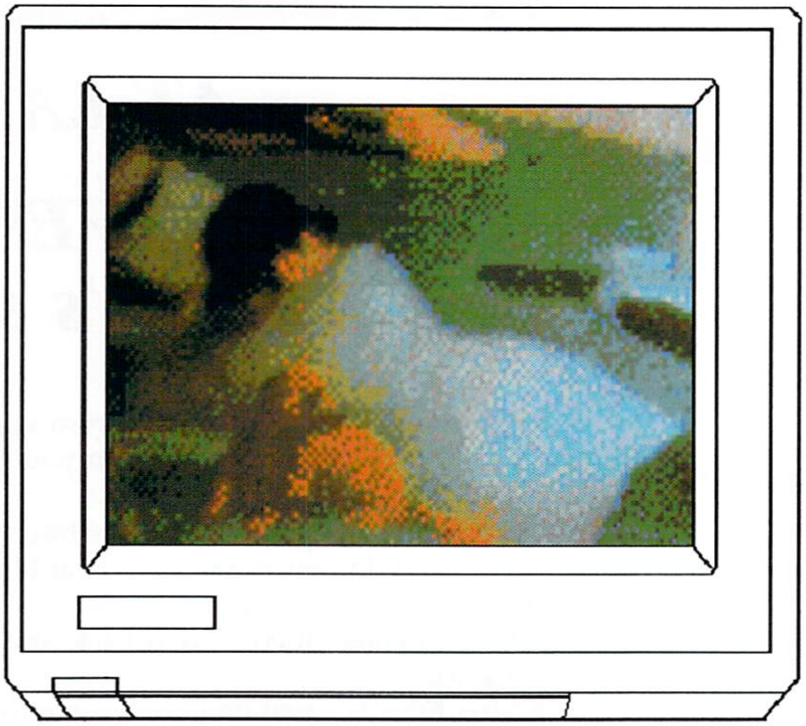
Listing 1. BigPict

```
MODULE BigPict;
(*-------------------------------------------*)
(* BigPict - A Modula-2 Demo which imports a  *)
(* larger-than-screen-size image and lets the *)
(* user scroll around in it using the arrow   *)
(* keys.  Demonstrates use large images,      *)
(* scrolling, and intercepting raw keystrokes *)
(* as Intuition events.          *)
(*    David T. McClellan  March/April 1988.   *)
(*    For September 1988 AmigaWorld. *)
(*    Written in Benchmark Modula-2. *)
(*-------------------------------------------*)
FROM SYSTEM IMPORT
ADR, TSIZE, BYTE, ADDRESS;
FROM InOut IMPORT
WriteString, WriteLn;
FROM System IMPORT
argc, argv;
FROM Intuition IMPORT
ScreenPtr, ScreenFlags, ScreenFlagsSet,
NewScreen, NewScreenPtr, CustomScreen,
Window, WindowPtr, NewWindow,
     NewWindowPtr, WindowFlags, WindowFlagsSet,
     SuperBitMap, IDCMPFlags, IDCMPFlagsSet,
IntuiMessage, IntuiMessagePtr,
OpenScreen, CloseScreen, RethinkDisplay,
     MakeScreen, OpenWindow, CloseWindow,
     RefreshWindowFrame,OpenWorkBench,
     ViewAddress, ViewPortAddress,CursorUp,
     CursorDown, CursorLeft, CursorRight;
FROM Clipping IMPORT
Layer, LayerPtr;
FROM Layers IMPORT
ScrollLayer;
FROM Memory IMPORT
AllocMem, FreeMem, MemPublic, MemChip,
     MemClear,MemReqSet;
FROM Ports IMPORT
GetMsg, ReplyMsg;
FROM Tasks IMPORT
Wait, SignalSet;
FROM Rasters IMPORT
RastPort, RastPortPtr;
FROM Views IMPORT
ViewModes, ViewModesSet,
ViewPort, ViewPortPtr;
FROM DrawItIFF IMPORT(* Our own module *)
DrawIt, DrawCleanup;
CONST
(* Keyboard constants *)
RtShiftOn = 97;    RtShiftOff = 225;
     LfShiftOn = 96;    LfShiftOff = 224;
HelpKey = 95;(* Use for "Go to the Top" *)
VAR
Xmax, Ymax : INTEGER; (*maxima of screen *)
CurX, CurY : INTEGER; (* Current Upper
                         (* Left Corner Coords *)
PROCEDURE TryMove (awin : WindowPtr;
                          newx, newy: INTEGER);
VAR
boundedX, boundedY : INTEGER;
vwidth, vheight : INTEGER;
dx, dy : INTEGER;(* For ScrollLayer *)
winvport : ViewPortPtr;
                          (* awin's Viewport *)
BEGIN
winvport := ViewPortAddress (awin^);
vwidth := winvport^.DWidth;
vheight := winvport^.DHeight;
IF (newx < 0) THEN
boundedX := 0;
ELSIF ((newx + vwidth-1) > Xmax) THEN
boundedX := Xmax - vwidth;
ELSE
```

Listing continued on p. 88

To shift the image, BigPict decides on the direction of the attempted move and calls TryMove. TryMove limits the move to keep you from scrolling outside of the image. Once the program decides on the proper distance to move, it calls ScrollLayer (from the Layers library) to move the window over the bitmap. Once the window is repositioned, BigPict tells Intuition to redraw the display by calling the functions MakeScreen and RethinkDisplay.

After TryMove is done, BigPict waits for more input. If it receives another arrow- or Help-key



message, it scrolls; if it gets a shift press or release, the program alters the shift counter. If BigPict gets a Close message, it calls DrawCleanup to free the memory and quits. The logic follows one simple path—get a key, try a move, and do a ScrollLayer, or quit.

To see the BigPict in action, compile it and then type:

```
BigPict  IFFfilename
```

Whether you are writing a custom drawing program or simply a slide viewer, SuperBitMap window scrolling techniques let you spend more time admiring the results of your labors and less time laboring. ■

David T. McClellan is a contributing editor to AmigaWorld. *Write to him at 104 Chevron Circle, Cary, NC 27511.*

When you want to talk Amiga...you want to talk to us.

MONITORS

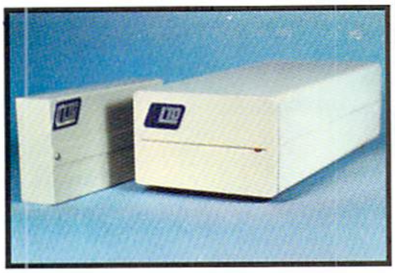
AMDEK
Video 210A TTL........89.99
Video 410 TTL........149.00
MAGNAVOX
505 RGB/Comp/Analog....199.00
8762 RGB/Comp/Analog...279.00
873B Multimode........464.00



MAGNAVOX 9CM082 VGA Display **$449**

NEC
Multisync Plus........999.00
PACKARD BELL
PB1272 12" TTL........89.99
PB1418 Flat Screen........129.00
PB1422 14" EGA........369.00

HARD DRIVES



C.LTD 50 MB (A2000) **$1169**

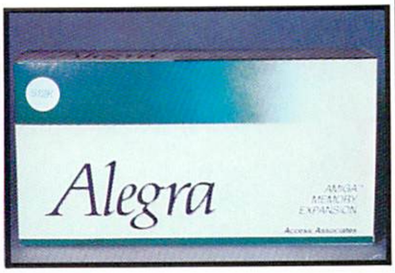
C.LTD (500, 1000, 2000)
33MB (2000)........859.00
44MB (2000)........1139.00
50MB (2000)........1169.00
Call for 500/100 Prices
MINISCRIBE
20MB 3½" 40MS........319.00
20MB 3½" 65MS........289.00
SUPRA (500, 1000, 2000)
20MB (2000)........619.00
30MB (2000)........699.00
60MB (2000)........1349.00
Call for 500/1000 Prices

MODEMS

ANCHOR
Volksmodem 12 300/1200......99.99
1200 External........129.99
Omega 80 300/1200........129.00
HAYES
Smartmodem 300........159.00
Smartmodem 1200........289.00
Smartmodem 2400........429.00
PRACTICAL PERIPHERALS
1200 External........119.00
2400 External........199.00

MEMORY EXPANSION

ACCESS ASSOCIATES
Alegra 2MB........CALL
ALegra 512K........CALL
Autopal Expander........29.99
C.LTD



ALEGRA 2MB **CALL**

SPIRIT TECHNOLOGY
A500 1.5MB W/OK........289.00
A1000 1.5MB W/OK........299.00
Clock Opt A500 Board........39.99

DISKETTES

MAXELL
MD2-DM DS/DD 5¼"........9.49
MFD2-DDM DS/DD 3½"........18.49
SONY
MD2D DS/DD 5¼"........9.49
MFD-2DD DS/DD 3½"........18.99

PRINTERS

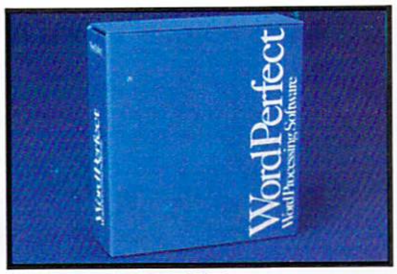
BROTHER
M-1109 100cps Dot Matrix.....179.00
EPSON
LX-800 150cps; 80 col........189.00
FX-850 264cps; 80 col........Call
FX-1050 264cps; 132 col........Call
LQ-850 24 wire 80 col........Call
OKIDATA
Okimate 20 Color........129.00
ML-182 + 180cps, 80 col.....239.00
ML-320 + 300cps,; 80 col.....379.00
PANASONIC
KX-P1080i 120cps, 80 col.....169.00

PRINTERS

KX-P1091i 194cps, 80 col.....209.00
STAR MICRONICS
NX-1000 144cps, 80 col........189.00
NX-1000 Rainbow Color......249.00
NX-15 120cps, 132 col........329.00
PRINTER CABLES
A1000 to Parallel........12.99
A500/2000 to Parallel........12.99

SOFTWARE

ABSOFT
AC Basic........136.00
AC Fortran........189.00
ACCESS SOFTWARE
Leader Board........26.99
AEGIS DEVELOPMENT
Animator/Images........83.99
Draw Plus........149.00
Diga........54.99
Sonix........49.99
ANAKIN RESEARCH
Easyl 500........299.00
Easyl 2000........369.00
A SQUARED SOFTWARE
Live!........279.00
DISCOVERY
Marauder II........26.99
ECE RESEARCH
ECE MIDI 500/1000/2000......49.99



WORD PERFECT CORPORATION Wordperfect **$199**

ELECTRONIC ARTS
Deluxe Music........62.99
Deluxe Paint II........97.99
Deluxe Video 1.2........97.99
Deluxe Production........159.00
EQUAL PLUS
Financial Plus........189.00
GOLD DISK
Pagesetter w/Text Ed........89.99
INFINITY SOFTWARE
Gallieo........49.99
Shakespeare........169.00
JDK IMAGES
Pro Video CGI........149.00
Font Library I or II ea........64.99
LATTICE
C Regular........149.00

SOFTWARE

C Professional........279.00
MANX SOFTWARE
Aztec C: Developer........219.00
Aztec C: Professional........139.00
METACOMCO
Macro Assembler........66.99
MCC Pascal........66.99
MICROILLUSIONS
Dynamic Cad........359.00
MICRO SYSTEMS SOFTWARE
The Works........139.00
Excellence........159.00
Scribble........66.99



MIMETICS PRO Studio **$129**

MIMETICS
Midi-Interface A500........49.99
Sound Sampler........99.99
Amigen Gen Lock........159.00
NEW HORIZONS
Pro Write........79.99
NEW TEK INC.
Digi View 2.0........139.00
Digi Paint........44.99
NORTHEAST SOFTWARE
Publisher Plus........64.99
OXXI SOFTWARE
Maxiplan 500........96.99
Maxiplan Plus........134.00
PAR SOFTWARE
Express Paint........79.99
SEDONA SOFTWARE
Money Mentor........59.99
SUBLOGIC
Flight Simulator II........39.99
Jet Flight Simulator........37.99
TRUE BASIC
True Basic Lang........69.99
Runtime........99.99
Libraries (ea.)........39.99
VERSASOFT
DBMan........99.99
VIP SOFTWARE
VIP Professional........112.00
WORDPERFECT CORP
Wordperfect........199.00
ZUMA GROUP
TV Show........64.99
TV Text........64.99
Zuma Fonts (ea.)........24.99

COMPUTER MAIL ORDER

In the U.S.A. and in Canada
Call toll-free: 1-800-233-8950
Outside the U.S.A. call 717-327-9575, Fax 717-327-1217

MEMBER MMC MICROCOMPUTER MARKETING COUNCIL of the Direct Marketing Association Inc

Educational, Governmental and Corporate Organizations call toll-free 1-800-221-4283
CMO, 101 Reighard Ave., Dept. B9, Williamsport, PA 17701

ALL MAJOR CREDIT CARDS ACCEPTED • CREDIT CARDS ARE NOT CHARGED UNTIL WE SHIP

POLICY: Add 3% (minimum $7.00) shipping and handling. Larger shipments may require additional charges. Personal and company checks require 3 weeks to clear. For faster delivery, use your credit card or send cashier's check or bank money order. Credit cards are not charged until we ship. Pennsylvania residents add 6% sales tax. All prices are U.S.A. prices and are subject to change, and all items are subject to availability. Defective software will be replaced with the same item only. Hardware will be replaced or repaired at our discretion within the terms and limits of the manufacturer's warranty. We cannot guarantee compatibility. All sales are final and returned shipments are subject to a restocking fee.

Circle 41 on Reader Service card.

B909

Exploring AmigaDOS 1.3* Part II

In the second episode of info.phile's "mini-series" on the new version of the Amiga's operating system, our columnists are singing the praises of the ch-ch-ch-changes to CLI commands.

By Bill Catchings and Mark L. Van Name

**Editor's Note: To get the information on version 1.3 to you as quickly as possible, the authors have had to use a "gamma" version of AmigaDOS 1.3. A gamma version is one that Commodore circulates to developers and a few other groups so that those groups can see what's coming and help shake out any bugs. It is the last unofficial release before the software hits your dealer's shelves.*

It is very likely that the final version will have the same new CLI commands as this gamma version, but *Commodore still could make some changes before it releases the final version. To be safe, when you buy a copy of version 1.3, plan to spend a few minutes verifying that everything works as it is described here.*

AMIGADOS 1.3 INCLUDES changes to over 20 commands—far more than space permits us to cover here. So, we'll hit as many of the more interesting changes as we can. One of the most important things that we gain from 1.3 is its new FastFileSystem, FFS. FFS makes hard-disk accesses much faster, although it does not currently help those of us with only floppy-disk drives. (Be patient, it will probably work with floppy drives in future versions of AmigaDOS.) Several commands have changed in subtle ways to work better with FFS.

ADDBUFFERS, for example, will help the performance of an FFS disk. With the standard file system, adding extra buffers did not always improve your disk's speed. If you have extra memory, ADDBUFFERS is now a much more useful command.

FORMAT also has a few new wrinkles that make it work better with hard disks in general, and with those that run FFS ►

in particular. The new QUICK option lets you save a lot of time when you are formatting a hard disk. If you use this option, FORMAT creates and formats only the root block, the boot block, and the bitmap blocks that it uses to control disk usage.

You can also decide whether the hard disk or hard-disk partition you are formatting should run under FFS or the standard file system. You can do so in either of two ways. Commodore would prefer you to state your preference in the MountList entry for that disk or partition. To make it an FFS partition, use a DosType entry that says FFS. To make the disk use the standard file system, omit that line.

Messing around with the MountList can be intimidating. It is full of technical lines that most of us care little about. To avoid ever seeing it, when you format your partition, use the FFS option or the NOFFS (standard file system) option to indicate which file system you want the partition to use. Be sure you mean what you say here, because these options will override the disk's MountList entry.

One other disk-related command, DISK-DOCTOR, will work a bit better under 1.3. It will not work a great deal better, but even a small improvement is nice when you are talking about a command that helps you save files from crashed disks.

A Bit of Real Protection

AmigaDOS has offered the PROTECT command from the beginning, but it's never been very useful. Its one claim to fame is that you can use it to protect a file from deletion by removing its delete option (bit). For example:

```
PROTECT myfile rwe
```

Version 1.3 represents another step forward for this command, but, unfortunately, not enough of a step to make it worth using frequently. In addition to the existing four options (RWED), you can set four new protection options:

A—archive
H—hidden
P—pure
S—script

The A option lets you mark files for archiving. While 1.3 does not do anything with the H option now, it seems a logical choice for a means to make a file "invisible" to the CLI. Many other operating systems, including MS-DOS, support hidden files. The P option indicates a file whose code is "pure" (more on that term next month). Finally, the S option denotes a script, or command, file, another topic for a future column.

Rather than simply stating all of a file's options, as you must do with 1.2, you can add new options to a file or subtract existing ones. To do this you use the ADD (or +) and SUB (−) keywords. For example:

```
PROTECT myfile ADD S
```

or the synonymous:

```
PROTECT myfile +S
```

will turn on the S option of myfile. Similarly:

```
PROTECT myfile SUB S
```

will remove that option, as will:

```
PROTECT myfile -S
```

Just as PROTECT has been updated to take into account the new protection bits, other commands, such as COPY, have been changed as well. COPY gives you much better control over the attributes of a duplicate file. By default, AmigaDOS copies the protection bits of the source file to the resulting destination file. The date and the comment are not copied. New options enable you to override these defaults. NOPRO specifies that the protection bits should not be copied. DATE and COM copy the source file's date and comment, respectively. CLONE causes all the attributes—the date, protection bits, and comment—to be copied.

To further simplify the duplication of files, COPY will now create a new directory if the TO parameter's destination is a directory that does not exist.

A List of LIST

The LIST command also has been changed to support the new protection bits and to add new functions. The new protection bits are now displayed along with the old ones in a file listing. In addition, LIST will handle file patterns rather than just directories. For example, you can now type:

```
LIST S:S#?
```

to list all the files in the S directory starting with the letter S.

New or changed options permit you to tailor the output of a LIST command. QUICK now eliminates the extra spaces after file names. BLOCK lists the size of files in blocks, instead of in the usual bytes. With the FILES or DIRS options, you can restrict the output of a listing to files only or directories only.

More complex, the LFORMAT option can be used to quickly create scripts to operate on a set of files. To use the option, include a LFORMAT="<output format>" clause in a LIST command. For each file found, LIST outputs a line using that format string. The output format string can include any characters plus the following special meanings. If a %S is found, LIST will substitute a file name. A second %S is replaced with the same file name. If you use four of them, LIST replaces them with the file name, the path name, the file name again and the path name again. For example, the command:

```
LIST > RAM:movec #?.c LFORMAT=
    "RENAME %S /CDIR/%S"
```

will put one line for each file ending in .c in a file called RAM:movec. Each line will be set up like this:

```
RENAME FOO.C /CDIR/FOO.C
```

You can execute the resulting file to move each of the files matching the template to the CDIR directory. While this example is not too earth-shattering, you can use the LFORMAT option to create scripts very quickly and easily.

SEARCH also has been improved for better use with scripts. It now sets the condition flag to indicate whether the requested string was found. You can use the new QUIET option so that the matching line will not be displayed. Two other new SEARCH options allow you to have more control. NONUM turns off the outputting of line numbers. The FILE option searches for a file name rather than a string within a file. This permits you to use SEARCH in the same way you would use the UNIX FIND command.

Along with all the improvements to the file-manipulating commands, Commodore made enhancements to some of the process-handling commands. NEWCLI now uses a startup file. If you use a FROM option, the commands in the specified file are executed at CLI startup. If the FROM option is not pres- ►

ent, the default file, S:CLI-Startup, is executed. This allows you to customize your CLI before you use it.

STATUS now can check for the existence of a process running a given command with the COMMAND=<cmd> option. For example, the commands:

```
STATUS > tempfile
COMMAND = testprogram
BREAK < tempfile > NIL:
```

will attempt to find and interrupt a process running a command named testprogram.

Grab Bag of Goodies

AmigaDOS version 1.3 has not only added improvements, it has eliminated a lot of the problems of previous releases. One such quirk was the DATE command's requirement that the month field must be two digits. Months such as September had to be entered with a leading zero. This problem has been fixed. SETDATE, used to set the date and, optionally, the time of a file, has been modified similarly.

DELETE has been changed to continue deleting files even if a file deletion fails. This will prevent DELETE from stopping completely if you type the name of one file incorrectly in a long list. AmigaDOS will not delete the misnamed file, but will delete all the files following it.

Commodore removed another annoyance by permitting the INFO command to accept the name of a device as an argument. Now you can obtain information on an individual device, instead of always seeing all the devices listed.

In previous releases, the options for DIR were single letters. Now there are more descriptive synonyms: ALL, for A, to list the contents of all subdirectories; DIRS, for D, to list only directory names; and INTER, for I, to enter interactive mode.

For its temporary files, EXECUTE now uses a directory named by the logical name T:, if it exists, rather than the :T directory. EXECUTE uses temporary files when doing argument substitution. A new copy of a script is created with the correct arguments filled in from the command line. This script is then executed. You can speed up such scripts by assigning a directory on the RAM disk to T:.

Commodore also has changed the way the INSTALL command operates. These modifications will provide a little bit of help in the war against viruses. Viruses on the Amiga typically infect disks by means of the boot block. To help make this task more difficult, INSTALL clears the memory it uses to build the boot block. The CHECK option compares the boot block on a disk against valid Commodore-Amiga boot code. INSTALL returns a warning if the boot code is considered to be nonstandard. Another option, NOBOOT, makes the disk no longer bootable. It will then be a regular AmigaDOS disk.

Next time we will discuss the new RESIDENT command and how it can make your life more pleasant. Until then, experiment with the new tricks Commodore taught these "old" commands. ■

Mark L. Van Name and Bill Catchings are contributing editors to AmigaWorld. *Write to them at 10024 Sycamore Rd., Durham, NC 27703.*

Circle 18 on Reader Service card.

CHECK US OUT! WE MAKE IT EASY

☑ SERVICE ☑ SUPPORT ☑ SELECTION ☑ PRICES ☑ GUARANTEE

UTILITIES

AC BASIC	135
AC FORTRAN	199
Assempro	64
Atalk Plus	52
Aztec Debugger	49
Aztec Developer	195
Aztec Professional	129
Benchmark Modula 2	129
Butcher 2.0	25
C64 Emulator	46
CLI Mate	27
DOS-2 DOS	35
Diga	52
Disk-2-Disk	32
Diskmaster	39
FACC II	25
Flipside	39
GOMF	25
Lattice C Professional	245
Lattice C Regular	129
Maurader 2	25
Online	45
Power Windows 2 EA	59
True BASIC	69

PRODUCTIVITY

Business

Amigamotion	65
Deluxe Write	69
KFS Accountant	195
Microlawyer	39
Money Mentor	69
Nimbus Accounting	95
P.H.A.S.A.R.	61
The Works	129

Databases

Acquisition	189
DataRetrieve	52
Logistix	95
Microfiche Filer	69
Organize	52
Superbase Personal	95
Superbase Professional	199

Spreadsheets

Analyze 2.0	94
Haicalc	39
Maxi Plan	95
Maxiplan Plus	129

Wordprocessing

Becker Text	89
Dynamic Word	129
Excellence	159
Fleet Check	27
Flow	65

PRODUCTIVITY

Gold Spell	29
LPD Writer	75
Laser Script	29
Lex Check	25
Precisely	55
ProWrite	75
Reason	249
Scribble	55
Softwood Write/File	69
Textpro	52
Wordperfect	225

ENTERTAINMENT

AAArg	25
Airball	27
Alien Fire	27
Arazok	29
Archon 2	17
Arkanoid	35
Artic Fox	29
Auto Duel	35
Awesome	33
BMX Challenge	19
Balance of Power	29
Barbarian	27
Bard's Tale	33
Beyond Zork	34
Black Cauldron	29
Black Jack Academy	27
Block Busters	33
Breach	27
Bridge 5.0	25
California Games	29
Capone ** NEW **	27
Crown Jewels	27
Dark Castle	29
Defender of the Crown	33
Deja Vu	33
Descartes	25
Destroyer	29
Dungeon Master ** NEW **	28
Ebonstar ** NEW **	27
Ferrari Formula One	33
Fire Power	19
Flight Simulator 2	35
Footman	22
GB Air Rally	27
GO	28
Galatic Invasion	19
Gold Runner	27
Golden Path	29
Grand Slam Tennis	32
Gridiron Football	42
Guild of Thieves	29
Hardball	29
Harrier Combat	33
High Roller	35

ENTERTAINMENT

Hunt for Red October	33
Ice Hockey ** NEW **	call
Indoor Sports	33
Insanity	27
Into the Eagles Nest	29
Jet ** NEW **	35
Jewels of Darkness	22
Kampgruffe	39
Karate Kid 2	27
King of Chicago	33
King's Quest 1, 2 OR 3 EA	33
Knight Orc	29
Land of Legends	32
Leaderboard	26
Marble Madness	33
Mean 18	29
Moebius	39
Pawn	29
Phantasie 3	27
Phasar GUN ** NEW **	40
Plutos	22
Port of Call	32
Power Pak GAMES	25
Racter	30
Return to Atlantis	33
Road Europa	29
Roadwar 200	27
Rocket Ranger	33
Rogue	27
Romantic Encounter	27
S.D.I.	33
Shadow Gate	33
Shanghai	27
Silent Service	33
Silicon Dreams	23
Sinbad	33
Smooth Talker	33
Space Quest	33
Star Fleet 1	39
Star Glider	29
Stellar Conflict	27
Strip Poker	29
Surgeon	34
Tass Times in Tonetown	27
Tele Games	24
Tele Wars	27
Terrorpods	27
Test Drive	29
Thexder ** NEW **	25
Three Stooges ** NEW **	32
Timebandits	27
Turbo	19
Ultima 3	29
Ultima 4	39
Uninvited	32
Video Vegas	25
Vyper	22
Wrath of Nicodian	27

EDUCATION

Demonstrator	22
Discovery Expansion Disks	15
Discovery Titles ALL-CALL	27
Fairy Tale Adventures	32
First Letters	33
First Shapes	33
Great States 2	29
KidTalker	33
Linkword Foreign Lang EA	24
Little Computer People	25
Mastertype Improved	29
Math Talk	33
Mathtalk fractions	33
Perfect SAT Score	55
Planetarium	45
Senor Tutor	52
Speller Bee	33

CREATIVITY

Publishing

Page Setter	90
Professional Pages	249
Publisher Plus	64
Publishing Partner	129
Shakespeare	149

Graphics

Analytic Art	40
Animate 3D	99
Animator Effects	33
Animator Flipper	27
Animator's Apprentice	195
Animator/Images	85
Award Maker Plus	call
Bumper Sticker Maker	37
Business Card Maker	37
Calligrapher	82
Calligrapher 4-Pak	59
Centerfolds	call
City Desk	99
Color Separator	129
Comic Setter	65
Deluxe Paint 2.0	92
Deluxe Photo Lab	70
Deluxe Print	70
Deluxe Video	92
Digi Paint	40
Digi View 2	129
Director	49
Draw Plus	165
Dynamic CAD	249
Express Paint 2	52
Graphics Studio	39
Home Builder's CAD	129
Impact	59
Intro CAD	52
Lights	52

CREATIVITY

Page Flipper	35
Photon Paint	65
Photon Video Cell	105
Photon Video Translator	195
Pix Mate	45
Print Master Plus	33
Print Mst Fonts/Borders	22
Project D	35
Silver	115
TV Show	64
TV Text	64
Video Titler	95
Video Toaster	call
Videoscape 3D	125

Sound/Music

Audio Master	39
Deluxe Music	70
Dynamic Drums	52
Dynamic Studio	129
Hotlicks	34
Instant Music	34
Music Mouse	55
Music Studio	34
Music X	195
Sonix	52
Studio Magic	65
Synthia	65

BRiWALL

Solid Products • Solid Support

P.O. Box 129, 56 Noble St.
Kutztown, PA 19530

TOLL-FREE 24 HOURS
1-800-638-5757

OUR PROMISE
WE GUARANTEE YOUR SATISFACTION

If, for any reason, you are not satisfied with your selection within 15 days of your receipt, simply return the product to us. We will either issue you full credit for exchange on another selection, or refund your purchase price, less $5.00 for restocking and handling. Defective items are replaced free of charge!

Free Spirit Software Inc.

ULTRA DOS UTILITIES
MODULE I

Ultra DOS Utilities - Module I is the ultimate file handling and backup system for the Amiga series of computers. Ultra DOS brings the simplicity and ease of use of the intuition operating system to AmigaDOS. Use UltraDOS to:

- Perform virtually all AmigaDOS functions at the click of a mouse button
- Copy/delete files from/to any legal AmigaDOS device
- Copy by simple or complex wild card patterns
- Copy by creation date, volume device or directory
- Quickly and easily install even the most complex software on your hard drive
- Backup valuable files on a floppy or hard drive
- Perform whole hard drive backup with multi-format feature
- Preview & edit text files
- Preview IFF picture files
- Set & clear all types of file protection

Ultra DOS Utilities - Module I supports "batch" selection of files for copy/deletion and allows file selection across directory or volume boundaries greatly easing software installation on hard drives. Ultra DOS uses double buffering for lightning fast copies. Since Ultra DOS does not monopolize the CPU to achieve its speed, multi-tasking is fully supported. Ultra DOS auto-configures to multi-hard drive systems or multi-partitions. Ultra DOS will support more than 10 meg of memory. Ultra DOS is compatible with all Amiga versions (512K Amiga required).

Ultra DOS Utilities - Module I makes all other intuition based DOS utilities obsolete. **only $39**

Your Key to Learning The AMIGA™



The 'Kickstart'™ Guide to the AMIGA™ $24.95

A most comprehensive guide to operating the AMIGA™
A best seller in Europe finally offered in the US!

ADRIADNE SOFTWARE LTD with Midnite Press
Distributed by Micro Pace, Inc. 1212 Hagan, Champaign, IL 61820
Dealer inquiries welcome (217) 356-1885

DO WE HAVE HARDWARE?
! YES !

Call or write for our complete price list of hardware & accessories!

$$$$$$$$
COLLECT BONUS DOLLARS

One bonus dollar, good towards your next purchase, for every $50.00 ordered!

CALL FOR LATEST PRODUCTS, PRICES AND COMBINATION SPECIALS!

ORDERING INSTRUCTIONS: VISA, MasterCard, Personal Check, Money Order, COD or School P.O.'s are welcome. Shipping USA $4.00/ground, $6.00/2nd Day, $14.00/overnight. C.O.D. add $3.00. Canada/Mexico: $6.00 Air Mail Foreign: $12.00 (for Air Mail use charge & specify maximum). PA residents add 6% sales tax. Include phone number and computer drive model with order. All items will be shipped immediately, (if we are out-of-stock we will let you know). **SHIPPING CHARGE IS PER ORDER!**

For CUSTOMER SERVICE please call us:
Monday thru Friday, 9:30 a.m. - 4 p.m. EST
1 - (215) - 683-5699

VISA NO SURCHARGE MasterCard

Circle 132 on Reader Service card.

AmigaWorld's Summer

Win an Amiga 2000 Plus

The end is near, Part Three is here. If you answered the first 30 clues correctly, you're two-thirds of the way to a chance at the Grand Prize: an Amiga 2000 plus a Getaway Weekend to the treasure site (including luxury accommodations for two nights and round-trip airfare) to collect the prize.

If you missed the first two legs of the journey, you can order copies of the July (Part One) and August (Part Two) issues by sending $4.50 plus $1 shipping and handling per copy to *AmigaWorld*, Attn: Treasure Hunt Back Issue Orders, 80 Elm St., Peterborough, NH 03458, or call 800/343-0728. Be sure to specify you are on the Treasure Hunt, so you will receive your magazines in time to make the deadline.

All the clues are linked so you will need to solve each one before you can move on. Decipher all the clues correctly and you'll know the location of the buried treasure.

Be sure you have saved your answers to all previous clues (you will need them). The exact *answer* to each clue will correspond to the word or words marked in italics.

When you have the solution, fill out the coupon below (or a facsimile). All entries must be received at the *AmigaWorld* offices by Thursday, September 15, 1988. Only one entry per return address will be accepted. The winner will be selected in a random drawing of all correct entries held on Friday, September 16, 1988. Listen for your telephone notification on Monday, September 19th. Confirmation will follow by mail. Have your bags packed for the Getaway Weekend (Friday, Saturday, and Sunday), October 21–23 or 28–30 depending on your schedule.

In the November issue we will publish the winner's name and the trail to the treasure with the answers to each clue in all three parts of the treasure hunt.

The odds of winning will depend on the number of correct entries received. If the prize is not claimed, a second drawing will be held to award it. Taxes and duties on all prizes are the sole responsibility of the winner. Prizes are not transferrable, nor are they redeemable for cash value.

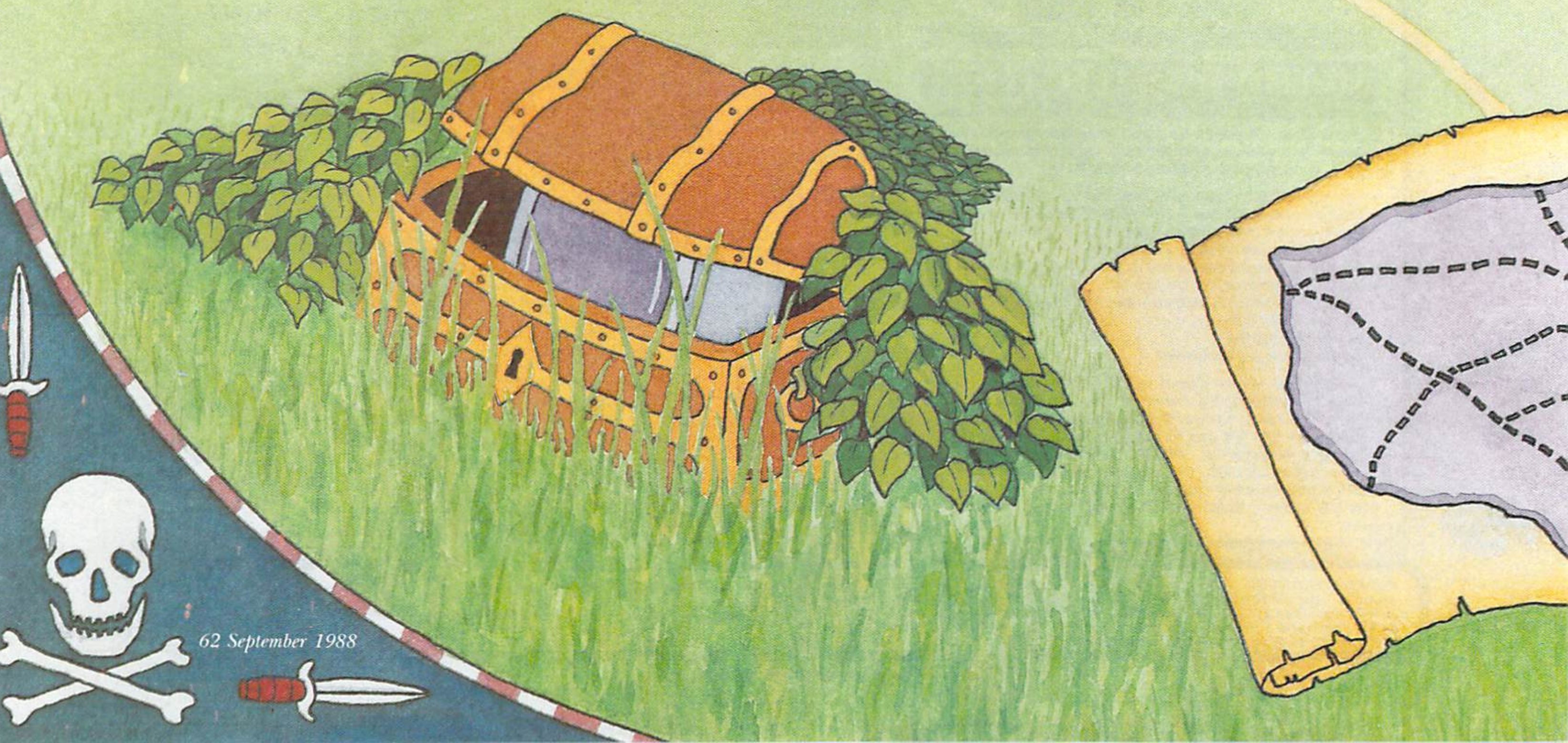
No purchase necessary. All federal, state, and local laws apply. Void wherever prohibited by law.

Anyone of any age may enter. Minors must be accompanied by parent or legal guardian to claim the prize. If the winner resides outside the US or Canada, the Amiga 2000 prize will be shipped to the winner at our expense. There will be no Getaway Weekend in this case.

Employees of IDG Communications Inc., its affiliates, subsidiaries, advertising and promotion agencies, and their families are not eligible to enter.

Entry constitutes permission to use the winner's name, photograph, or other likenesses for promotional purposes without further compensation to the winner. Submissions become the property of *AmigaWorld* and cannot be returned. *AmigaWorld* is not responsible for lost, misdirected, or late mail. All entries received after September 15 are void and ineligible for the drawing.

The winner and his or her companion assume all risks and dangers incidental to traveling to and from the site of the Getaway Weekend and to their stay during the Getaway Weekend, and agree that *AmigaWorld*, and IDG Communications Inc. and its affiliates, are not liable for any injuries, loss, or other mishaps suffered during the period specified above.



'88 Treasure Hunt

A Getaway Weekend for 2

THE CLUES—PART THREE

31. Leave town by a *route* whose number is the first half of a famous rallying cry of Pacific Northwest expansionists in the 19th century.

32. Travel occidentally, passing through a town whose name is the same as a great naval battle. Shortly afterwards look for a *town* whose namesake, a home-run-hitting slugger, might be deduced from the title of a novel based on the life of Louisiana demagogue Huey Long.

33. Continue on the same route in the same direction, crossing three state lines, until you join an *interstate*.

34. Proceed in "Mae's" direction on the interstate. Your *next route* will be revealed when you stop to take a poll as to what road to take.

35. Follow the sign in a boreal direction, crossing two state lines, to the end of the route at *"Tom's" place.*

36. Continue in the same direction from "Tom's" on a route whose individual digits add up to the number of winners of the Triple Crown in American horse racing. Join the first *interstate* you encounter.

37. Stop in a diner and order an omelette made with green peppers, diced ham, and onions. Proceed on the interstate in an appropriate direction to a *place* where you could get a real sugar high.

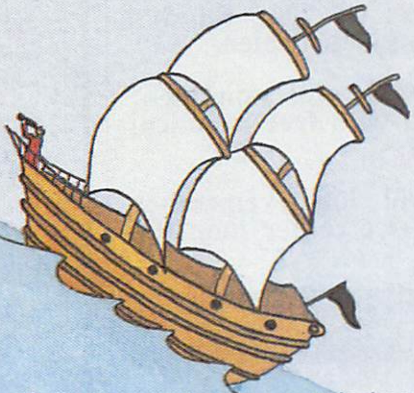
38. Return to the interstate on which you've been traveling. Proceed in the same direction until you reach another interstate. Set your sights on Polaris and proceed accordingly until you reach a *city* whose name suggests that of the man who wrote "Bankers Are Just Like Anybody Else, Except Richer" and "Cat Naps Are Too Good for Cats."

39. In this city, another interstate joins the one on which you've been traveling. Proceed in the same direction on this junction. When the roads divide, take the new interstate and cross the first *state* line.

40. Proceed on the interstate in the same direction, crossing another state line, until you arrive at a *town* whose name is the same as that of a man famous for playing "the pipes."

41. Here you will find your *new route*, whose number can be found through some NBA basketball statistics. Subtract the value of a shot made 40 feet from the basket from the highest number of points ever scored by one individual in an official game.

42. Proceed in an austral direction until you reach a *town* whose name is the same as a "super" alias.

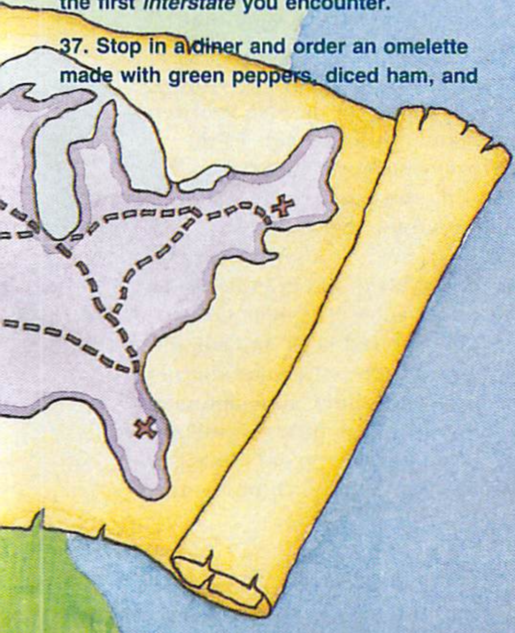


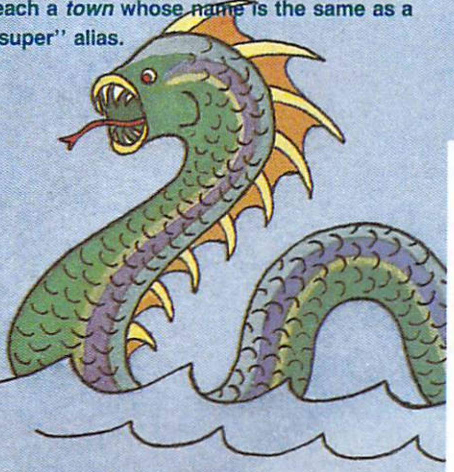
43. Continue on the same route in the same direction, crossing the next state line, until you reach an interstate. Proceed on the interstate in the same direction until you reach a two-word *town*, the first word of which might describe the face of a poker player caught trying to do the second word.

44. Continue on the same route in the same direction until you reach another interstate, whose number is the same as the maximum filenote length in AmigaDOS. Proceed in the Santa Maria's direction on the new interstate to the *city* where it ends.

45. You have reached the city where the Treasure Hunt ends. The city, however, is not the solution to the contest. You must find the place in this city where the treasure is "buried." To do so, go to the nearest phone and dial a *telephone number* whose digits you can learn from the following answers to previous clues:

Area Code: #34, first digit; #23, second digit; #22, first digit
Exchange: #17, first digit; #25, first digit; #7, first digit
Number: #8, first digit;, #36, first digit; #31, second digit; #33, first digit.
When you call, have a pencil and pad handy.





AMIGAWORLD'S SUMMER '88 TREASURE HUNT
AmigaWorld
80 Elm St.
Peterborough, NH 03458

The treasure is buried at: ______________________

Name: ______________________
Address: ______________________

Day phone: ______________________
Evening phone: ______________________
Entries must be received by September 15, 1988

from p. 18

on the screen with the mouse and click. Clicking again will place an identical device. For the perfect position, you can rotate devices by 90° increments. The negative logic or DeMorgan equivalents of most devices are available. To set things straight, you can display a variable size grid of colored dots. Devices will optionally snap into position on the grid so that the pins of connecting devices will line up. You can also snap signal lines to the grid, making alignments quick and easy. Among other things, the repeat function will duplicate a line for consecutive pin placement.

Signal names tie the signals to the connecter pins. You can place signal names above or below lines with automatic page reference generation, which labels every signal with the page numbers where it occurs again. Bundles of signals (busses) can be routed together to help avoid clutter. Pro-Net will generate device numbers (U1, U2, and so on), properly handling packages with multiple gates.

To make the most efficient use of space, you can edit your schematic. So that devices from the same package will not be placed too far apart, you can define zones. Text, non-electrical lines and arcs, and filled or hollow boxes and circles can be placed anywhere on the schematic diagram. You can adjust signal lines after placement. You can also move one device at a time while retaining connections, but line routing may suffer.

Two special features address the problem of later needing devices with sections tied to the power or ground plane. You can tie these pins to surface power or surface ground which will route a trace on the surface from the power or ground plane to the pin. You can later cut the trace and connect a jumper.

Post-processing functions include creating a net list, bill of materials, page references, error list and component map. You even can type in a supplementary net list that Pro-Board will combine with the main list.

Pro-Board

Pro-Board (PROfessional pc BOARD generator) is a PC board layout program that uses Pro-Net's net list to guide you in making the connections on the PC board and verifying that the board design agrees with the Pro-Net schematic. If you purchase the programs independently, you can create a board without a net list or enter your own list.

Pro-Board adds small color-coded gadgets to the text line above the Intelligent Function Keys. The gadgets let you select the layers of the PC board that are displayed (each in a corresponding color) and to designate the working layer that your mouse affects. The auto-layer gadget activates automatic selection of the working layer based on your actions. If graphic features of one layer overlap another, you can display them in a color derived from the overlapping colors, for a translucent effect.

Choose your templates from a library of various-sized integrated circuit (IC) solder pad patterns, connecter patterns with or without pin numbers, and miscellaneous component patterns. You start your PC board by drawing the exact size and shape of the board, and placing the components (pad patterns) and mounting or clearance holes. The program then checks the components against the net list. Similar to Pro-Net, Pro-Board's editing features let you create or modify library parts to .001-inch accuracy. After you correct any errors, the program will do a "rat's nest," straight lines showing all of the connections in the net list. By studying this maze, you can discover where you need to rearrange components to minimize the length and crossing of traces.

When final placement is complete, Pro-Board leads you, one trace at a time, indicating which pads you must connect. On a .025-inch grid, you route the traces (.012-inch trace and .013-inch space minimums) by clicking the beginning and end points. Pro-Board will find the shortest route and place the trace. To place a via (a conducting hole through the board), just position the pointer, click, and press the via gadget. When auto-layer is on, the program puts near-vertical traces on a different side of the board from near-horizontal traces. Before starting the board, you can specify the sides used for vertical and horizontal.

You can add text and graphics to any layer: component side, solder side, power layer, ground layer and silk screen (label) layer. Pro-Board creates the silk screen layer and solder mask automatically. If you wish, the program will generate power and ground planes, mark X and Y coordinates of all components,

and create a file cross-referencing the X and Y coordinates with the device numbers.

Wired for Power

Pro-Net and Pro-Board are extremely fast and powerful professional-quality programs. They create well-documented, verified designs, automating normally time-consuming and error-prone tasks. The programs are easy to use, but only once you learn them. The small, poorly-written manuals are not much help. Fortunately, Prolific's customer support is excellent. Updates to both products, released as we go to print, promise PAL support in addition to other improvements.

Pro-Net
Pro-Board
Prolific Inc.
1808 W. Southgate Ave.
Fullerton, CA 92633
717/447-8792
$475 each
One megabyte required.

The Wedge

Drive the bridge to a low-cost hard disk.

By Carl Mann

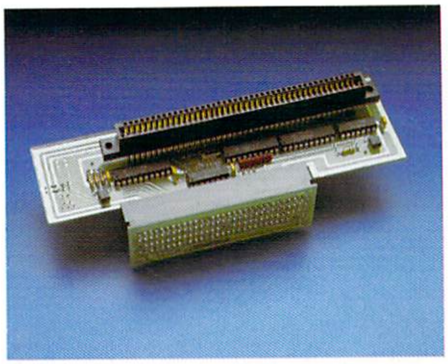
WHILE 20 MEGABYTES of Amiga hard-disk storage is now less than half the price of early Amiga hard-drive systems, it still costs at least twice as much as a 30-meg IBM storage kit. Imagine being able to connect your Amiga with an ST506 hard disk!

There's no need to daydream any more. The Wedge, a hardware/software combination, lets you run a standard IBM-type controller and hard drive on your A500 or A1000. It's fast, and it's less expensive than the SCSI-bus systems by a large margin. There's a price for this savings, of course, but one you may be better able to afford than cash.

The Wedge may not perform properly if your Amiga has internal expansion RAM, but it works fine with external units offering bus pass-through (I did not test it with a card cage). By itself, The Wedge is not a hard-disk system; you can't plug an ST506 drive directly into it. Instead, The Wedge attaches to the bus and accepts an XT-style controller.

Building Bridges

The total cost of my construction project was about $419: $100 or so for a good controller, $75 for a cheap, 10-meg drive, $75 for a hard-drive power supply and case, $10 for cables, and The Wedge ($159). To that you can add assembly time (the amount will depend on the components' pedigrees, plus your technical skills and resources). My initial assemblage was complete in four hours, but it looked like something from a bad science-fiction movie. Another six hours produced a neat, presentable package.


Careful . . . the exposed Wedge is fragile.

I rated The Wedge's various characteristics on a scale of one to ten. In the categories of materials quality, reliability (once you get it to work the first time), and performance, The Wedge gets perfect scores. In the assembly division, considering both ease and quality, it gets a seven. Software and documentation score six and five respectively.

The quality-of-assembly rating would improve if the unit were encased so that cats, stray elbows, and gravity could not separate The Wedge's components. The edge connectors don't lock, and separation is an ever-present possibility in the current "naked" design. I accidentally nudged the unit during a disk-write operation with disastrous results; an elaborate web of rubber bands now holds my system together.

The low score for software quality would be higher if the "verify disk" function of The Wedge's low-level formatting program (FMT) would perform properly, and if AmigaDOS were able to find Bill-disk.device in the DEVS/ directory, as it should. At present, FMT counts the cyl- ►

inders but neglects to move the read/write head from track to track on the actual drive, and AmigaDOS can locate the device only in the C/ directory.

The product designers wrote the documentation. They're too close to the subject, and as a consequence, some vital matters are obscured (the section on how to configure a mountlist is confusing) while others are omitted (there is no discussion of building a startup-sequence for fast booting). Although disk files attempt to explain it all, the authors made too many assumptions about the users' technical proficiency.

Steel-Arch Support

RSI Systems, maker of The Wedge, attempts to compensate for the documentation deficiencies by providing excellent telephone support and access to their MindLink bulletin-board system (where you can reportedly find answers to many technical questions). Unfortunately, a call to British Columbia is expensive for many of us.

In dealing with RSI Systems, two things became obvious. The RSI team is anxious to please; they return calls, dig up esoteric drive statistics, produce custom-configured system files without being asked, and generally knock themselves out. Secondly, the software and manual are still somewhat under development. Officially, The Wedge now falls under FCC rules for "experimental apparatus" (it does not contribute noticeably to my system's RF-interference characteristics, though). You must be prepared to work closely with RSI Systems to resolve any bugs in your configuration.

RSI also sells assembled Wedge-based hard-drive systems. If you're a hacker at heart, though, you'll probably like the do-it-yourself package despite its idiosyncrasies.

Not everybody needs a SCSI port and full networking capabilities. A Wedge-based hard-drive system costs much less than the SCSI subsystems, and it supplies the essentials.

The Wedge
RSI Systems
9651 Alexandra Rd.
Richmond, BC
Canada V6X 1C6
604/270-0064
$159
ST506 hard drive and controller required.

D-50 Parameter Editor
Caged Artist's D-50 Editor/Librarian
The D-50 Master Editor/Librarian

Three-part harmony.

By Bob Lindstrom

ALTHOUGH THE Roland D-50 is easier to program than most FM synthesis keyboards, the fact remains that a few hundred values may be altered in the creation of just one D-50 voice. Each individual voice consists of two tones of two partials, and those two tones are combined with a full array of additional patch data. Whew. . .can the Amiga help out?

It can! There are at least three editor/librarians on the market to help you program the D-50 (and D-550 rackmount module) through your Amiga: Go Software's D-50 Parameter Editor, The D-50 Master by Sound Quest, and the Caged Artist's D-50 Editor/Librarian from Dr. T's Music Software.

D-50 Parameter Editor

Musicians who blew the bank account to buy their D-50/550 may admire the Go Software package by Brian Gontowski. It provides no-frills patch editing at a low price. It also commits itself fully to the analog control panel ideal. Instead of numbers and values, buttons and sliders imitate the tweak-tempting interfaces that appeared on early analog synthesizers. These are matched with envelope graphs to access the D-50's many sound possibilities.

In addition to the basic ability to receive and transmit patches to the Roland, this editor allows you to save patches to disk. Without a librarian screen, however, the D-50 Parameter Editor is not as capable as the competition when it comes to mixing and matching individual patches into banks.

The program includes one module for printing patch parameters; another provides an on-screen keyboard with slider-adjustable key velocity that can "play" the synthesizer (a great way to test patches).

The main drawback of this editor is that it has leaned too far in favor of the analog panel. The screen does not dis- ►

play the numerical values of your adjustments. Therefore, while the Parameter Editor provides the means to creatively manipulate patches, it produces little in the way of specific feedback. If you want to enter patch values printed in books or magazines, you'll have to set aside this program and use the front panel of the D-50/550.

THE D-50 MASTER EDITOR/LIBRARIAN

If you're using the Texture sequencing software (Sound Quest), look no further. The Master editor is the only way to go, as it supports Texture's use of the parallel port for MIDI output. This deluxe editor/librarian boasts a wealth of other superb features, too.

The miracle of the Sound Quest editor is that it shows so much patch information on a single screen without crowding or obscuring the display. You can find virtually everything at a glance.

To enter data, simply click and hold the left mouse button on a value. Then edit with left-right mouse movement or the up-and-down cursor control keys. Mouse response is very efficient and sensitive (sometimes too sensitive), yet direct keyboard entry would have been a convenient alternate means of changing values.

Pitch, filter, and amplitude parameters are displayed as envelope graphs. Just click a point on the graph and move it to your desired position. As in all other editing operations, the change is sent to the D-50/550 instantly so you can immediately hear the results.

Sound Quest has provided a superior librarian in this package. You can cut, paste, and delete patches from a sound bank and save or load them to or from disk. Better yet, you can keep more than one sound bank window open simultaneously (available RAM is the limit) and cut and paste between them.

Such basics, however, are only the beginning. During editing, you can lock together several parameters; then, changing one will alter the others by the same amount. You can mix and match portions of various sizes (tone, partial, and patch data to those fluent in Rolandese) among patches. All altered values in a patch are highlighted so you can easily see which numbers have changed during an editing session.

The D-50 Master's several random patch generators help you create new sounds. You can combine two patches in various ways to produce an entirely new bank of sounds. If you prefer, you can go to the Variations screen containing a bank of sliders that determine how the program will randomly generate new patches. Considering the intricacies of programming the D-50/550, it may prove effective to let the computer randomize new voices and then choose or fine-tune the best of the bunch.

One weakness concerns the playback options. Menu selections allow you to play a single note, a chord, or a preset sequence at the touch of a mouse button. The program doesn't let you play the synthesizer from your keyboard controller, however, a feature that would be a real asset for matching music to timbre. You can easily remedy the problem with the appropriate MIDI hook-up or by multitasking a MIDI merge utility. Still, Sound Quest might have added the option and saved us the trouble.

With its many other features and the help screens throughout (a necessary addition to the technically high-level man-

ual), Sound Quest's D-50 Master is an excellent example of how much muscle and creativity an editor/librarian can contribute.

Caged Artist's D-50 Editor/Librarian

The Caged Artist program has a "right tool for the job" feel. Without the glamour or exotic add-ons of the Sound Quest editor, this product stresses speed of operation and the kind of editing convenience that will appeal to a no-nonsense professional.

Instead of showing all parameters and envelope graphs on the screen at once, this editor moves between several independent screens to alter the D-50's partials, tones, and patches. The advantage over Sound Quest's approach is larger, more readable displays; the disadvantage is an inability to get the whole picture at a single glance.

Dr. T's data entry method is the best of the three editors, providing both mouse-slider control and direct keyboard entry (very handy when entering patch parameters from magazines). Altered values are highlighted and remain so until changed back to the original value. You can edit envelopes by selecting a point on the graph and moving it. All alterations are sent immediately to the synthesizer.

By holding a mouse button and moving the cursor across the screen, you can play strings of notes to test a patch, changing both pitch and velocity. In keeping with its professional performance orientation, this editor also offers integral MIDI merge, which allows you to play new patches from a controlling keyboard. If you're playing music through a multitasking sequencer while editing, the MIDI implementation lets you filter program changes from the sequence (it saves a lot of confusion, believe me).

The patch librarian can hold two complete 64-patch voice banks in memory at once. You can swap patches between them to generate new patch banks. You can also save individual tones and complete voices to disk for later mixing and matching in new patches.

The Caged Artist provides patch randomizing capabilities comparable to Sound Quest's Variations screen. A mask screen determines how much each aspect of a patch will be effected. After randomization, an undo function can restore the original. It works well, but because this editor is divided into several screens for each portion of a patch, you must run the process seven inconvenient times to alter every part of the voice.

MIDI merge and type-in data entry are the outstanding merits of the Caged Artist editor. Like the other Dr. T products, the D-50 editor/librarian is not pretty, but it does a great job.

Only Amiga Makes it Patchable

The Amiga beats all other MIDI-controlling computers because it lets you mix and match software—you're not locked in to any particular combination. I effectively multitasked all three editors with two different sequencers.

If you're on a tight budget, Go Software's editor will get you started. If you can afford it, though, I recommend one of the others. Which is better? It's a matter of taste. The Caged Artist editor offers more efficient note entry and good live performance features, while Sound Quest's randomizing is excellent and its ►

interface takes advantage of the Amiga's Intuition. None will teach you how to program the Roland D-50/550, but all will streamline the job.

D-50 Parameter Editor
Go Software
RR #1, Box 442, Spicer Rd.
Thompson, CT 06277
203/923-2348
$89.95
512K and MIDI interface required.

The D-50 Master Editor/Librarian
Sound Quest
5 Glenaden Ave. E.
Toronto, Ontario
Canada M8Y 2L2
416/234-0347
$150
512K and MIDI interface required.

Caged Artist's D-50 Editor/Librarian
Dr. T's Music Software
220 Boylston Street, Suite 306
Chestnut Hill, MA 02167
617/244-6954
$149
512K and MIDI interface required.

Animation: Effects Animation: Stand

Build a video-effects studio on a budget.

By Wayland Strickland

WHILE THE 3-D modelling programs are quite flashy, with the right special effects, two dimensions can look equally professional. Hash Enterprises offers two ways to get your IFF and Hold-and-Modify (HAM) files moving—Animation: Effects and Animation: Stand.

Animation: Effects

Comprised of three separate programs—Wipe, Scroll, and Flip—Animation: Effects enhances your video presentations. For example, you can use Wipe to make the transition from a digitized picture to video input from a genlock, or use Scroll to roll the credits for your creations.

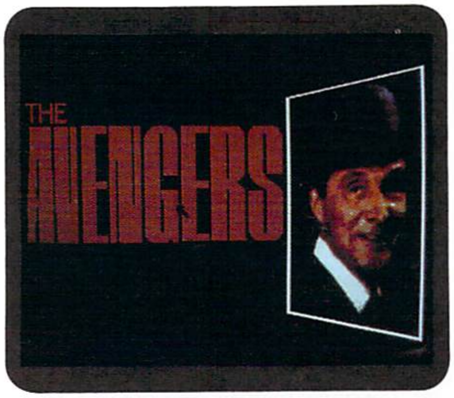
Wipe loads an IFF or HAM image in overscan and displays it over live video. You can wipe (move a new image over the current screen display) from left to right, right to left, top to bottom, or bottom to top. If you want to be fancy, you can perform a box wipe from the center out to the edges of the screen; the image begins as a small rectangle in the middle of the screen, then expands in all directions. The box wipe works best with lo-res, non-interlaced images; the higher the resolution of the image, the slower and rougher the wipe appears. The other wipes perform smoothly in all resolutions. Another transition option is to fade in or fade out the image. You will fade in and out to black, however, not to the background color, color zero, that a genlock uses. To load your image and select a wipe, you use the function keys and the arrow keys.

If wipes are not your style, you can try Scroll. The mouse-driven program loads any IFF text file or IFF image file (except in HAM and overscan) and scrolls the text or picture up and down the screen. The up arrow scrolls your image from top to bottom; the down arrow moves graphics from bottom to top; the space bar pauses the scroll. You cannot,

however, adjust the scrolling speed. The information and images move at a moderate speed suitable for reading. After using Scroll in both low and interlaced resolutions, I did not notice any speed degradation. The text and pictures scrolled up and down the screen smoothly.

Scroll does have some quirks. You can load five lo-res images into memory at once, but can only load two interlaced images at a time. I could understand this curious limitation on a low-memory machine, but I tested the program on an Amiga with four megabytes of RAM. Be sure that all information you wish to scroll has the same number of palette colors and the same resolution. If not, the program terminates, dropping you back to the Workbench screen without any warning. Even more annoying is that the program will not completely scroll the last page of text or graphics off the screen; the scroll stops about mid-way, leaving half the image on the screen.

The final and most complex member of the triumvrate is Flip, which lets you animate an IFF or HAM image. First, you must load the image and block off the section you wish to flip, making a matte. Although you can use any resolution to obtain the matte, the program's output is in low resolution (352 × 240) or hi-res (704 × 480) overscan only. Mattes



ADO-type maneuvers are easy with Effects.

from interlaced images appear to be stretched from top to bottom when generated in lo-res and squashed from left to right when in hi-res. Until Hash Enterprises releases an update to correct this, you can easily compensate by rescaling the matte.

After saving the matte to disk, you must create a choreography or motion file, a relatively painless process compared to similar programs. You use icons to represent the matte's position on screen and the direction the matte is facing, similar to the method used in Hash's Animator Apprentice. To roll, tilt, and swivel your image, you rotate it along the x-, y-, and z-axes. At each key frame you can control the number of frames the program generates between the present frame and the next key frame, as well as designate how many frames to use to eliminate choppy movement. All of this information is stored in a key frame list, premitting minute changes to the key frames. You can also adjust the size and scale of the matte at each key frame.

Besides letting you control the matte's movements, Flip allows you to adjust light intensity, the position of the single light source, the camera's perspective, shading, and the matte's pivot point. You can take a last look at any frame in your choreography file before you record. When you are ready to record, you have a choice of three modes. IFF lets you ►

Circle 69 on Reader Service card.

store frames in the IFF format for use with paint or page-flipping programs. Pack compresses the images so that you can play them back in pseudo-real time and keeps them compatible with other Hash products. A tightly compressed storage format, Anim is compatible with player programs written for VideoScape 3D (Aegis). With the companion program, Display, you can play back the compressed images from Pack and Anim formats at speeds ranging from 4 frames per second (fps) to 60 fps. Anim files play back somewhat faster than files in the Pack format. Flip adds an extension to each file's name to help you identify its contents. The extension, such as .PAC32L, reminds you of the method of storage (PAC), the number of colors (32), and the resolution (L).

The only drawback to Flip is its slow compilation time for animations. To compile each frame, Flip apparently rereads the matte image for each frame it generates, instead of keeping the information in memory. Storing the choreography file and the animation in a RAM disk did not speed things up much. Relatively slow times, however, are inherent in compiling compressed animations. The program is 68020/68881 compatible, for those who don't mind an expensive acceleration solution.

Animation: Stand

Designed to simulate an animator's camera stand, Animation: Stand offers effects such as distortion, which lets you stretch an image in various directions. You can also perform repetitive background cycling, called a pan; the seemingly endless living room Fred Flintstone runs through is an example. You can zoom into and out of any part of an IFF or HAM image. Through interpolation, Animation: Stand maintains picture integrity when zooming in and out. Of course, the higher the resolution you use, the more realistic and detailed the zoom appears.

Animation: Stand does not offer full overscan, but merely 352 × 480 and 704 × 480. The program records images in much the same manner as Flip does, but currently does not support the Anim format. Rendering full-screen images is time-consuming, so Animation: Stand will scale down and draw your image to 75, 50, or 25 percent for a quick look in a fraction of the time.

Animation: Effects and Animation: Stand will run from either Workbench or the CLI, and both support the European PAL standard. The manuals for the two programs are informative and pertinent; both Flip and Animation: Stand have well written tutorials. The packages require at least one megabyte of RAM, but, considering that animation is quite memory intensive, you may want another megabyte. If you have room left over to run other programs, only Flip is capable of multitasking.

After putting them through rigorous tests, I recommend Animation: Effects and Animation: Stand for video amateurs and professionals who are on tight budgets.

Animation: Effects
Animation: Stand
Hash Enterprises
14201 SE 16th Circle
Vancouver, WA 98684
206/256-8567
$49.95 each
One megabyte required. ►

"The definitive Pascal compiler for the Amiga"

— SOURCE: AMIGA USER

METACOMCO PASCAL NEW VERSION 2!

Metacomco, the authors of AmigaDOS, announce the release of version 2 of their unique single pass Pascal compiler. It is the most powerful and useful ISO Pascal on the Amiga with the friendliness and ease-of-use of a Turbo Pascal type environment.

The new manual even includes a section covering conversion of Turbo Pascal programs to Metacomco Pascal.

Ideal for beginners and experienced programmers. **$129.95**

Other extra features in the new release (which are optional extensions to the ISO standard) include: ■ Dynamic strings ■ Separate compilation and conditional compilation ■ Single and double precision floating point ■ Bitwise integer operations ■ Full 32-bit pointers ■ Enhanced I/O error handling ■ Sequential and random access files ■ OTHERWISE in CASE statements ■ Complete access to the graphics and sound capabilities of the Amiga, with extensive examples ■ Includes linker and MAKE utility ■ Extensively rewritten 330 page manual.

METACOMCO

26 Portland Square, Bristol BS2 8RZ, UK.
Telephone 44 272 428781
Fax 44 272 428618 Telex 444874 METACO G

See your local dealer or send order plus check direct to Metacomco. Please add $12 for postage.

© METACOMCO 1988 Amiga is a trademark of Commodore-Amiga Inc. Turbo Pascal is a trademark of Borland International.

Circle 16 on Reader Service card.

MEMORY AND STORAGE TECHNOLOGY INC.

3.5″ EXTERNAL DRIVE FOR THE AMIGA from $139.95

THE BUDGET DRIVE:

For the budget-minded a slim, reliable, low-power drive in attractive metal case. **KIT $139.95 ASSEMBLED $149.95**

DISK DRIVES FOR THE DISCERNING USER

UNIDRIVE™ $169.95

THIS RUGGED WORKHORSE IS ONE OF OUR TOP OF THE LINE DRIVES

- Fujitsu drive (from Japan's leading computer co.) • Superslimline (height 1″) • Quiet
- 12 months warranty • Quality round cable (detachable) • Hinged dust cover
- Can be powered from the computer or from an external 9v DC powerpack! • Beige metal case
- Very low standby power (typically 6mA) • Does not click when diskette removed
- Switch on rear panel allows drive to be disabled

TWINDRIVE™ $299

TWO 3.5″ DRIVES IN ONE CASE

- Pass thru
- Logic for 5.25″ drive

"DOWNUNDER" BUT NOT OUT
MONTHLY AUSTRALIAN MAGAZINE ON A DISK $9.95

REMEMBER M.A.S.T. OFFERS GUARANTEED UPGRADES FROM UNIDRIVE TO TWINDRIVE

- No loss of initial investment
- No need for messy pass thru (remember long cables = noise + + +)
- A neat compact package, whatever your requirements, now or in the future.

MAST Technical Excellence

ORDERS & CUSTOMER SERVICE
7631 East Greenway
Scottsdale, AZ 85260, USA

HEAD OFFICE: Suite 100, 1000 E. William St.
Carson City, Nevada 89701, USA. Tel: (702) 883-4904

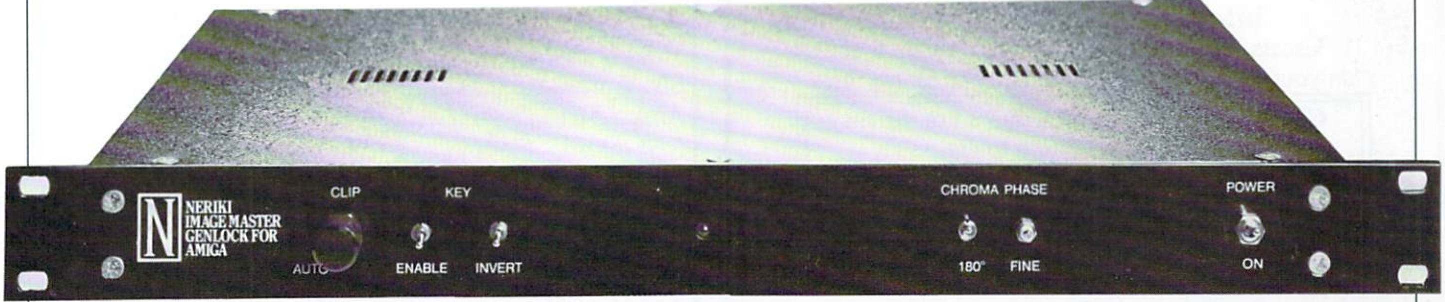
Amiga® is a registered trademark of Commodore Amiga Inc.

AUSTRALIAN OFFICE: Unit 3, 94 Excelsior St.
Toronto, NSW 2283, Australia. Tel: (049) 596336
SCANDANAVIA:DATA Team Scandanavia,
Eriksfaltsgatan 71A, 214 65 Malmoe, Sweden.
Tel: 040-944-711 DEALERS WELCOME

Circle 181 on Reader Service card.

NERIKI

delivers



a true BROADCAST quality genlock for the AMIGA™

- The **NERIKI IMAGE MASTER™ PRO GENLOCK** outputs 520 lines of encoded NTSC resolution (600 lines in PAL). It incorporates an adjustable luminance keyer and has a chroma phase control.
- The NERIKI supports all graphics modes & resolutions and is compatible with all AMIGA models.
- This rack mountable unit supplies a full complement of BNC input & output connectors, integrating all your professional and broadcast studio requirements.

North American distributor: **COMPU_ART**
P.O.Box 712, Victoria Station,
Montreal, Qc., Canada H3Z 2V8
(514) 483-2080 ✆ (514) 737-5865

International Distributor: **TELMAK PTY LTD**
Unit 12, 126 Queens Road
Five Dock, N.S.W. 2046,
Australia 2065 ✆ (02) 745-3466

Neriki Image Master is a trademark of Neriki Computer Graphics PTY Ltd. Amiga is a trademark of Commodore Business Machines Ltd.

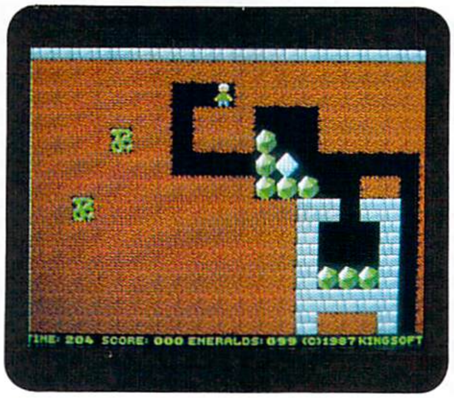
Circle 190 on Reader Service card.

Emerald Mine

THE CLASSIC ARCADE games—Space Invaders, Pac Man, and Donkey Kong—are those you want to play even after the novelty has worn off. Emerald Mine holds your interest in the same way.

Emerald Mine is not unusual in that it is a series of puzzles you must solve in sequence. This game, however, contains over 100 levels! I must take that number on faith, as I have only made it to level 22 so far. The levels are often difficult to master; you must learn the rules of each, maneuver around obstacles, and avoid the merciless creatures.

In each level, your objective is to gather all the emeralds in the allotted time. Besides emeralds, you will find: diamonds, which carry three times the point value of emeralds; rocks, which you can topple onto creatures (watch out—they can fall on you if you're not careful); explosives; keys to locked rooms; wheels that attract enemy bugs;



Collecting jewels is the easy part!

and more. Robots will chase you through one level. On other levels, "eater" mouths try to gobble you, pots overflow with boiling acid, and amoeba-like creatures spread deadly green slime. Some strategy is involved—you must keep an eye on the creatures and plot your path—but for the most part, you just need to explore.

A smooth-scrolling view screen displays part of the large playing area. The sound effects add to the game without distracting you, and the graphics are adequate.

Emerald Mine is fast paced, but it doesn't require the reflexes of Superman. You control your miner with a joystick; movement is smooth and responsive. One or two people can play; two-player mode lets you and a friend play simultaneously as a team. The game saves 30 high scores for each level on the copy-protected disk. It also has an unusual feature for saving eight players' names, total scores, and the number of levels each has mastered.

I'm addicted. My children love Emerald Mine. Even my jaded friends are hooked. If you want a game you will not quickly tire of, dig in! (*$19.95, KingSoft, distributed by Constellation Software, 17 Saint Mary's Ct., Brookline, MA 02146, 617/731-8187. 512K and joystick required.)*

—Louis Wallace ■

THE READERS' CHOICE



"HOW COULD HE be so positive/negative about such an awful/outstanding program? I could rate it better than that!" Go ahead, now's your chance to tell us what you think. For the past two years, we editors have applauded our favorite products with the Editors' Choice Awards. This year we leave the voting up to you. On the supplied coupon (or a postcard), rate your hardware and software over a scale of one (the lowest) to 10 for each of the three criteria (A, B and C) listed in the appropriate category. Send your votes to: The Readers' Choice, *AmigaWorld*, 80 Elm St., Peterborough, NH 03458.

In the December issue, we'll present the 1st Annual Reader's Choice Awards with all the pomp and glitter they deserve. However, unlike the Academy Awards who employ the prestigious accounting firm of Price & Waterhouse for their tabulations, *AmigaWorld*'s results are entrusted to the firm of Cutrate & Watergate, infamous for their security leaks. While they can count accurately, they can't keep secrets. In upcoming issues, watch for pre-ceremony peeks inside the envelopes.

CREATIVITY (graphics, video, music, desktop publishing)
A) ease of use
B) flexibility (special equipment needed, integrates with other programs)
C) professional features (Can you use it in your business/studio?)

GAMES
A) playability
B) presentation (graphics, sound)
C) longevity (How long does it hold your interest?)

HARDWARE (memory expansion, hard drives, digitizers, genlocks)
A) ease of installation
B) ease of use
C) technical support

HOME (educational, finance)
A) ease of use
B) documentation (complete reference, examples, tutorials)
C) flexibility (Does it have a variety of uses or will you grow out of it?)

PRODUCTIVITY (spreadsheets, databases, accounting, telecommunications, word processors)
A) ease of use
B) flexibility (import files from other programs, a variety of applications)
C) advanced features (Can you grow into the program?)

PROGRAMMING (languages, utilities)
A) documentation (complete reference, examples, tutorials)
B) flexibility (integrates with other libraries, routines)
C) advanced features (Will it support more complicated applications?)

MISCELLANEOUS (whatever is left)
A) ease of use
B) documentation (complete reference, examples, tutorials)
C) performance (Does it do what was promised?)

PRODUCTS	**RATING** A	B	C

COMMENTS ______

PRODUCTS YOU WOULD LIKE TO SEE REVIEWED ______

Attention Foreign Computer Stores/ Magazine Dealers

You have a large technical audience that speaks English and is in need of the kind of microcomputer information that IDG Communications/ Peterborough provides.

Provide your audience with the magazines they need and make money at the same time. For details on selling AmigaWorld, RUN, 80 MICRO, CD-ROM Review, PC Resource and inCider contact:

Marjorie Rubin
Boarts International
747 3rd Avenue
New York, NY 10017
Phone: (212) 688-2778

TAKE A LOOK INSIDE





ON HARDDRIVES FOR YOUR A2000

FREE! We will format the drive using the New FASTFILE System FREE!

SCSI	48MG	28ms 3.5hdrive w/Cltd contrl.	$769.00
SCSI	20mg	w/Cltd contrl 3.5hdrive	$569.00
SCSI	45mg	5.25 hdrive w/Cltd contrl	$649.00
SCSI	45mg	5.25hdrive w/GVP 1mg Ok contrl.	$749.00
SCSI	45mg	5.25hdrive w/GVP 2mg Ok contrl.	$769.00
SCSI	48mg	28ms 3.5hdrive w/GVP Ok contrl.	$889.00
SCSI	48mg	40ms 3.5hdrive w/GVP Ok contrl.	$740.00
SCSI	65mg	40ms 5.25hdrive e/Cltd contrl.	$699.00
SCSI	65mg	40ms 5.25hdrive w/GVP Ok contrl.	$799.00
SCSI	32mg	28ms 3.5hdrive w/GVP 2mg Ok contr.	$710.00

HARDWARE

Amigen	$159.00
Avatex 2400 Baud Modem	$195.00
Digi-Droid	$75.00
Air Drive 3.5	$179.00
Pro Gen	$379.00
Copy Stand	$60.00
Easyl 1000	$359.00
Easyi 500	$355.00
Easyl 2000	$389.00
Flicker Fixer	$489.00
Future Sound	$139.00
Go 64	$59.00
68881 Math Chip	$189.00
Micron 1MG A1000	$625.00
Micron 2MG A1000	$750.00
Perfect Sound A1000	$67.00
Perfect Sound A500/2000	$67.00
Practical Periph. 2400 bd.	$199.00
Supra Modem 2400 bd	$169.00

ACCESSORIES

A-Time Plus	$49.00
C-View Composite	$39.00
C-View Monitor	$39.00
Copy Stand	$39.00
ECE Midi Interface 1000	$52.00
ECE Midi Interface 500	$52.00
Ergo Joystick	$20.00
Flicker Master	$14.00
Gender Changer NT	$24.00
Epyx 500 XJ Joystick	$18.00
MD120 3.5 Disk Cabinet	$35.00
MD64 3.5 Diskholder	$31.00
MD60 3.5 Diskholder	$28.00
Modem Cable A1000	$17.00
Modem Cable A500	$17.00
Mouse Pads Small	$8.00
Mouse Pads Large	$10.00
Printer Cable A1000	$17.00
Printer Cable A500	$17.00
Time Saver	$65.00
Track Ball	$39.00

UTILITIES

Celebrity Cook Book	$20.00
Custom Screens	$45.00
Disk 2 Disk	$35.00
Dos 2 Dos	$39.00
Doug's Math Aquarium	$55.00
Facc II	$27.00
Gomf	$30.00
Multi Preferences	$22.00
Power Windows II	$65.00
Quarterback	$47.00
TDI-Editor Sources	$35.00
TDI-Examples	$18.00
TDI-Grid Access	$35.00
TDI-Kermit	$22.00
Text Ed Plus	$52.00
Arexx	$34.00
W.Shell	$34.00
Marauder II	$29.00
Gold Spell	$32.00
Laser Scripts	$30.00
Micro Lawyer	$42.00
Print Master Plus	$35.00
Promis Spelling	$35.00

WORD PROCESSORS

WP Library	$85.00
Becker Text	$95.00
Excellence	$169.00
Flow Idea Proc.	$65.00
Kindwords	$69.00
LPD Writer	$79.00
LPD Writer Unprotected	$89.00
Prowrite 2.0	$82.00
Reason	$259.00
Textcraft Plus	$68.00
Textpro	$55.00
Viza Write	$65.00

SPECIAL! DIGI-VIEW "VERSION 3.0" SPECIAL!

Digi-View w/WV1410 camera & lens 16mm	$329.00
Perfect Vision "SPECIAL"	$179.00
PRO-GEN "SPECIAL"	$366.00
GEN-KEY NTSC Genlock	$689.00
SUPER GEN-KEY VHS Model Genlock	$879.00

The Software Shop will customize your business needs, Using Superbase Pro. Call for info.

Circle 134 on Reader Service card.

The Software Shop is an international Mail Order Company and Direct Outlet. Come to our 1500 sq. ft. Showroom and examine our huge selection of software and hardware.

THE SOFTWARE SHOP
International Showcase
for
Products in the AMIGA Marketplace



BUSINESS ACCOUNTING

The Accountant $199.00
B.E.S.T. Bus. Accts. $310.00
Financial Plus $199.00
Investor's Advantage $69.00
MI Amiga Ledger $65.00
Micro Lawyer $42.00
Nimbus Rcd. Keeper $110.00
B.E.S.T. General Ledger ... $79.00

HOME ACCOUNTING

Home Inventory $27.00
Money Mentor $67.00
Phaser $67.00

CREATIVITY

Analytic Art $42.00
The Big Picture $22.00
Business Card Maker $39.00
Calligrapher $65.00
Flip Side $39.00
Font Set I $25.00
Studio Fonts $32.00
News Letter Fonts $32.00
Gizmoz Enhanced $45.00
Grabbit $24.00
Intellitype $35.00
Keyboard Kadet $30.00
Master Type $30.00
Mavis Beacon Typing $33.00
Lion Fonts $57.00
Asha's Fonts $57.00
Kara Color Fonts $53.00
The Director $49.00

SPREADSHEETS

Analyze 2.0 .... $95.00
Haicalc $39.00
Logistix $99.00
Maxi-Plan 500 .... $99.00
Maxi-Plan Plus $135.00
VIP Professional $69.00

COMMUNICATIONS

A Talk Plus $55.00
BBS-PC $104.00
DIGA $55.00
Online $45.00

PRINTERS

NEC CP6 Color Printer ... $625.00
Okimate 20 Clr. Prt. $145.00
Okimate Plug'n Print $85.00
Panasonic 1081I $199.00
Star NX Rainbow $279.00
Star NX 1000 .... $199.00
Xerox 4020 Starter Kit $165.00
Zerox 4020 Printer $1295.00

MONITORS

Princeton Ultrasync $599.00
Thompson Monitor $255.00
Zenith Flat Screen $725.00

EDUCATIONAL

Adv. of Sinbad $35.00
Aesop's Fables $35.00
All About America $38.00
Animal Kingdom $35.00
Decimal Dungeon $35.00
Discovery Math $26.00
Discovery w/Math Spelling $26.00
First Letters & Words $35.00
First Shapes $35.00
Fraction Action $33.00
Grade Manager $59.00
Great States $28.00
Kid Talk $35.00
Kinderama $33.00
Linkword French $22.00
Linkword German $22.00
Linkword Italian $22.00
Linkword Russian $22.00
Linkword Spanish $22.00
Math Talk $35.00
Math Talk Fraction $35.00
Math Wizard $35.00
Perfect Score $55.00
Quiz Master $55.00
Read & Rhyme $33.00
Read-A-Rama $33.00
Speller Bee $35.00
Tales from Arabia $33.00
Winnie The Pooh $20.00
Wordmaster $33.00



LANGUAGES

A/C Basic $139.00
A/C Fortran $195.00
Assem Pro $69.00
Aztec C Developer $199.00
Aztec C Professional $133.00
Benchmark Iff Library $68.00
Benchmark Modula 2 ..... $139.00
Benchmark Simplified $67.00
Cape 68k $63.00
Developer Tool Kit $35.00
Lattice C $139.00
Lattice C Professional $249.00
Library's Sources $199.00
Metacomco Lisp $139.00
Metacomco Pascal $65.00
Macro Assembler $69.00
Metascope Debugger $65.00
Source Level Debg. $55.00
TDI Modula 2 Comm. $199.00
TDI Modula 2 Dev. $99.00
TDI Modula 2 Reg. $42.00

HARD DISK DRIVES

SCSI 20MG Drive A2000 ... $399.00
SCSI 3.5 32MG A2000 .... $420.00
SCSI 3.5 48MG A2000 .... $565.00
SCSI 3.5 48MG Drive 28MS $599.00
SCSI 40MG 5.25 Drive $470.00
SCSI 65MG Drive 5.25 .... $525.00
Phoenix Hard Drive $725.00
33MG HDrive A500/1000 .... $795.00
GVP SCSI Controller 1MG OK $275.00
GVP SCSI Controller 2MG OK $299.00
CLTD SCSI Controller $175.00

CAD SYSTEMS

Draw Plus $157.00
Dynamic CAD $325.00
Home Builders CAD $137.00
Intor CAD $55.00
Logic Works $69.00

DATABASE MANAGEMENT

Acquisition 1.2F $210.00
Data Retrieve $55.00
DBMan $139.00
Microfiche Filer $69.00
Organize $65.00
Rolobase Plus $62.00
Softwodd File II GS $85.00
Superbase $99.00
Superbase Professional ... $199.00

DISKETTES

Sony 3.5 DS/DD Diskettes ... $21.00
KAO 3.5 DS/DD
Color Diskettes $22.00
TDK 3.5 DS/DD Disks $21.00
Fuji 3.5 DS/DD Disks $21.00

DESKTOP PUBLISHING

City Desk $105.00
City Desk Art Companion ... $20.00
Page Setter $99.00
Professional Page $249.00
Publisher Plus $69.00
Shakespeare $145.00

A500/A1000/A2000 PERIPHERALS

A1010 External Diskdrive ... $220.00
A1010 5.25 External Drive .. $215.00
A1680 1200 Baud Modem ... $125.00
A2052 2MB RAM Expansion $595.00
Bridge Card w/5.25 Drive ... $569.00
A501 512K Mem A500 CPU $169.00
A2090 Hard Disk Controller $325.00

GRAPHICS & VIDEO

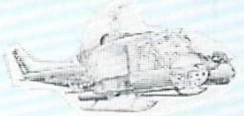


Animate-3D $103.00
Animation Effects $35.00
Animation Stand $35.00
Animator w/Images $85.00
Animator Apprentices $189.00
Art Gallery I $22.00
Art Gallery II $22.00
Art-Pak I $22.00
Art Parts I $22.00
Art Parts II $22.00
Butcher $29.00
Color Splitters $74.00
Calligrapher Help $30.00
Deluxe Paint Help $24.00
Deluxe Paint II $95.00
Deluxe Photo Lab $69.00
Deluxe Production $139.00
Deluxe Video II $95.00
Digi-Paint $45.00
Digi-Paint Help $24.00
Digi-View $140.00
E/FX Station Mgr. $195.00
Express Paint $67.00
Forms in Flight $54.00
Graphics Studio $39.00
3-Demon $74.00
Impact $57.00
Page Flipper $37.00
Photon Paint $67.00
Photon Paint Help $24.00
Pix-Mate $45.00
Prism $45.00
Provideo Plus $199.00
Sculpt 3-D $65.00

Seasons & Holidays $22.00
Silver Turbo $169.00
TV Show $67.00
TV Text $67.00
Video Scape 3D $129.00
Video Titler $95.00

ENTERTAINMENT

Aaargh $26.00
Alien Fires $30.00
Alternate Reality $30.00
Amegas $25.00
Arazok's Tomb $30.00
Archon $24.00
Archon II $35.00
Artic Fox $28.00
Arkanoid $23.00
Auto Duel $35.00
Awesome Arcade $34.00
Balance of Power $35.00
Barbarian $29.00
Bard's Tale $35.00
Bard's Tale II $42.00
Black Cauldron $30.00
Black Jack Academy $29.00
Boot Camp $29.00
Breach $29.00
Bridge 5.0 .... $22.00
California Games $29.00
Capone $29.00
Casino Fever $29.00
Champ. Baseball $29.00
Champ. Basketball $29.00
Champ. Football $29.00
Chessmaster 2000 .... $35.00
City Defense $15.00
Constellation $15.00
Contra $29.00
Crazy Cars $29.00
Dark Castle $29.00
Death Sword $18.00
Deepspace $24.00
Defcon 5 .... $29.00
Deja Vu $34.00
Destroyer $29.00
Detonator $29.00
Defender of the Crown $34.00
Diablo $18.00
Dr. Xes $33.00
Earl Weaver Baseball $35.00
Ebonstar $28.00
Emerald Mines $15.00
Empire $35.00
Fairy Tale Adv. $33.00
Famous Courses $15.00
Ferrari Formula One $35.00
Fire Power $18.00
Flight Path 737 .... $17.00
Flight Simulator $35.00
Footman $20.00
Frost Byte $20.00
Galactic Invasion $17.00
Galaxy Flight $20.00
Galileo II $45.00
Garrison $33.00
Garrison II $33.00
Gee Bee Air Rally $29.00
Gettysburg $42.00
Golden Path $30.00
Golden Pyramid $20.00
Goldrunner $25.00
Grand Prix $18.00



Grand Slam Tennis $33.00
Grid Start $18.00
Guild of Thieves $29.00
Hacker II $29.00
Hardball $30.00
Harrier Combat Sim. $33.00
Headcoach $33.00
Hex $29.00
Hollywood Poker $24.00
Hunt Red October $30.00
Indoor Sports $33.00
Insanity Fight $29.00
Intercepter $35.00
Into The Eagle's Nest $29.00
Jet $36.00
Jewels of Darkness $22.00
Jinxter $29.00
Kampfgruppe $39.00
Karate Kid II $29.00
Karate King $15.00
King of Chicago $33.00
King's Quest I $35.00
King's Quest II $35.00
King's Quest III $35.00
Knight Orc $33.00
Land of Legends $35.00
Larrie $15.00
Leader Board $27.00
Leather Neck $29.00
Leisure Suit Larry $29.00
Mindwalker $35.00
Moebius $42.00
Paladin $29.00
Phantasie $29.00
Phantasie III $29.00
Plutos $22.00
Ports of Call $33.00
Q-Ball $20.00
Quintette $29.00
Return to Atlantis $35.00
Roadwar 2000 .... $29.00
Roadwar Europa $29.00
Rockford $26.00
Romantic Encounter $29.00
Sargon III $33.00
Scenery 7 .... $18.00
Scenery 11 .... $18.00
Scenery Europe $18.00
S.D.I. $33.00
Shadow Gate $33.00
Shanghai $29.00
Silent Service $29.00
Silicon Dreams $20.00
Sinbad $33.00
Sub Battle $35.00
Skyfox $17.00
Skyfox II $29.00
Smooth Talker $35.00
Space Battle $21.00
Space Flight $21.00
Space Quest $35.00
Space Quest II $35.00
Starfleet I $39.00
Stellar Conflict $29.00
Strip Poker $29.00
Super Huey $29.00
The Surgeon $33.00
Telegames $25.00
Telewars $22.00
Temple of Apshai $17.00
Terropods $29.00
Test Drive $33.00
The Pawn $18.00
Thexter $26.00
Three Stooges $33.00
Tournament Disk $15.00
Turbo $20.00
Ultima III $29.00
Uninvited $33.00
Vader $20.00
Vampire Empire $30.00
Video Vegas $25.00
Vyper $20.00
Winter Games $29.00
Witchcraft $25.00
World Tour Golf $29.00
Zoom $24.00

SOUND & MUSIC

Audio Master $39.00
Back Songbook $104.00
D-50 .... $104.00
Deluxe Music $69.00
Dr Drums $104.00
Dr Keys $104.00
Dr T's Keyboard $170.00
Dx Heaver $104.00
Dynamic Studio $135.00
Dynamic Drums $53.00
Hot Cool Jazz $21.00
Hot Licks $34.00
Instant Music $32.00
Matrix 6 .... $104.00
MT-32 .... $104.00
Music Mouse $52.00
Music Student $41.00
Promidi Studio $134.00
Rock & Roll $22.00
4-Op Deluxe $104.00
Sonix $53.00
Sound Sampler $80.00
Studio Magic $67.00
Synthia $62.00

MAIL ORDERS:
Ordering Information:
Product subject to availability. Price subject to change.
Shipping info: C.O.D. only $3.50 per shipping. We ship UPS Ground. Air and overnight shipping available. For faster delivery send Cashier Check, Money Order, or use MasterCard or Visa. Personal checks allow 20 days to clear. Company purchase orders accepted. Call for prior authorization. Mass. residents add 5% sales tax. Amiga is a trademark of Commodore-Amiga, Inc.

Circle 134 on Reader Service card.

1-800-752-0050
(Orders Only)
Support (508) 756-6452 FAX (508) 799-9354

SHOWROOM:
22 Front Street, Worcester, MA 01614

RETURN POLICY:
All returns must have RA#. Merchandise found defective will be repaired or replaced. We do not offer refunds for defective products or for products that do not perform satisfactorily. We make no guarantees for product performance.

Creative Computers

Orders only: **800-872-8882** (outside CA) **213-370-2009** (inside CA)
4453 Redondo Beach Blvd., Lawndale, CA 90260 Mon-Sat 8AM-6PM PST FAX: (213) 214-0932

GVP
Great Valley Products

Impact SCSI Controller and memory board, 1 meg or 2 megs space
Will autoboot with 1.3 - Hard drives available up to 80 meg capacity- Call for prices.
GVP Hard Cards available. Please call.
Quantum 84 MB 12 ms 3.5" hard disk: $995!!
Shock mounted, 64KB cashe (for 12ms speed), SCSI interface. Compatible with IMPACT or A2090 boards.

Special Aegis Promotion:
Buy any three Aegis products and get *Ports of Call* **free!**
Or: Buy *Ports of Call* and get a *Ports of Call* T-shirt **free**
(while supplies last).

Sonix $49.98
Draw - CAD $49.95
Videoscape 3-D $124.98
Videotitler $99.95
Impact -Business Graphics $62.46
Arazok's Tomb $31.25
Ports of Call $29.71

Diga! -Telecommunications $49.98
Audiomaster $37.48
Animator + Images $87.48

New Aegis products:
Lights, Camera, Action!
Modeller 3-D

SOFTWARE

3-DEMON	*71.95*
64 EMULATOR 2, THE	49.95
A-TALK PLUS	51.98
AAARGH!	*23.95*
AC BASIC-COMPILER FOR AMI	134.06
AC FORTRAN	199.00
ACCOUNTANT, THE	186.89
ADRUM	51.98
ADVENTURE CONSTRCTION SET	14.40
ADVENTURES OF SINBAD	32.46
AEGIS ANIMATOR	87.48
AEGIS ART PAK#1-CLIP ART	24.98
AEGIS DRAW	49.95
AEGIS IMAGES-PAINT	24.98
AESOP'S FABLES	31.23
AIRT SYMBOLIC LANGUAGE	44.95
ALGEBRA I	32.46
ALGEBRA II	36.13
ALIEN FIRES	24.98
ALL ABOUT AMERICA	37.47
ALOHA FONTS	12.96
ALOHA FONTS 2	12.96
ALOHA FONTS 3	12.96
ALTERNATE REALITY	27.06
AMEGAS	22.72
AMIGA DOS EXPRESS	20.60
AMIGA KARATE	24.98
ANALYTIC ART-GRAPHICS	37.48
ANALYZE 2.0-SPREADSHEET	93.73
ANIMAL KINGDOM	31.23
ANIMATE-3D	*99.95*
ANIMATION EFFECTS	32.46
ANIMATION STAND	32.46
ANIMATOR FLIPPER	24.98
ANIMATOR JR.	49.38
ANIMATOR'S APPRENTICE	184.38
ARAZOK'S TOMB	31.25
ARCADE ACTION PACK	*34.95*
ARCTIC FOX 1.2	26.40
ARENA	12.96
AREXX	32.95
ARKANOID	35.72
ART COMPANION	19.95
ART GALLERY FANTASY	23.36
ART GALLERY I	18.73
ART GALLERY II	18.73
ART OF CHESS, THE	22.95
ART PARTS #2	21.60
ASHA'S FONTS	58.95
ASSEMPRO	59.97
AUDIO MASTER	37.48
AZTEC 68/AM-D	224.25
AZTEC C PROFESSIONAL	175.46
B.E.S.T. BUSINESS MGMT.	355.50
BALANCE OF POWER	34.34
BALLYHOO	27.47
BARBARIAN	25.77
BARD'S TALE	36.00
BARD'S TALE CLUE BOOK	10.77
BARD'S TALE II	41.95
BASIC GRAMMER SERIES	19.46
BBS-PC	62.32
BECKER TEXT	99.95
BENCHMARK LIBRARYS	64.97
BENCHMARK MODULA-2	129.97
BEYOND ZORK	33.76
BIG PICTURE OKIMATE	18.95
BLACK CAULDRON	28.80
BLACK JACK ACADEMY	29.95
BLITZKRIEG AT ARDENNES	34.41
BLOCKBUSTER	32.47
BOMB BUSTER	21.95
BORROWED TIME-TEXT ADVNTR	30.90
BREACH	25.95
BREACH SCENARIO DISK	16.21
BRIDGE 4.0-CARD GAME	20.55
BRIDGE 5.0	24.10
BRUSH WORKS	20.59
BRUSH WORKS 2	19.95
BUMPER STICKER MAKER	37.45
BUREAUCRACY	27.47
BUTCHER 2.0	23.13
BUTTON AND BADGE MAKER	38.98
C-ZAR	126.75
C.A.P.E. 68K ASSEMBLER	58.47
CALCULUS	36.13
CALLIGRAPHER	*79.40*
CAMBRIDGE LISP	124.95
CAPITALIZATION SERIES	19.46
CAPONE	*25.96*
CASINO FEVER	25.96
CB TREE PLUS	64.95
CELEBRITY COOKBOOK, THE	22.71
CENTERFOLD SQUARES	19.95
CHALLENGER	9.75
CHAMPIONSHIP SPORTS GAMES	27.46
CHESSMASTER 2000	32.40
CHESSMATE	20.60
CHICKEN LITTLE	19.48
CITY DEFENSE	14.95
CITY DESK	93.75
CITY DESK ART COMPANION	19.47
CLI MATE	24.98
CLIP ART SERIES 1-6	12.95
COMICS ON DISK	12.96
COMPUTER BASEBALL	27.47
CRAZY CARS	25.94
CRIMSON CROWN	12.97
CROSSWORD CREATOR	34.34
CRYSTAL HAMMER	12.96
CUBEMASTER	22.71
CUSTOMS SCREENS	43.73
DARK CASTLE	25.95
DATA RETRIEVE	49.95
DEATH SWORD	16.95
DECIMAL DUNGEON	31.23
DEEP SPACE	17.95
DEFCON 5	25.95
DEFENDER OF THE CROWN	34.34
DEJA VU	34.34
DELUXE HELP CALLIGRAPHER	22.71
DELUXE HELP FOR DIGIPAINT	21.84
DELUXE HELP FOR DPAINT II	21.84
DELUXE HELP FOR PHOTON PAINT	21.84
DELUXE MAPS	16.22
DELUXE MUSIC	69.95
DELUXE PAINT II	89.95
DELUXE PHOTO LAB	*99.95*
DELUXE PRINT + ART DISK	72.00
DELUXE PRINT ART DISK #2	21.60
DELUXE PRODUCTIONS	139.95
DELUXE VIDEO 1.2	89.95
DEMONSTRATOR, THE	21.85
DES CARTES	22.71
DESKTOP ARTIST	18.73
DESTROYER	25.26
DETONATOR	25.97
DEVELOPERS TOOLKIT	36.22
DIABLO	23.36
DIGA-TELECOM PACKAGE	49.98
DIGI PIX #2	22.71
DIGI-DROID	69.95
DIGI-PAINT	41.22
DIGI-VIEW 3.0	*143.72*
DIGI-VIEW 3.0 UPGRADE	11.95
DIRECTOR, THE	45.47
DISCOVERY EXPANSION DISKS	12.97
DISCOVERY GAME DISK	25.00
DISCRETE MATHEMATICS	36.22
DISK MECHANIC, THE	58.50
DISK PRO PLUS	18.75
DISK TO DISK	34.34
DISK WICK	32.46
DISKMASTER	37.40
DOCTOR TERM PROFESSIONAL	74.06
DOMINOES	16.95
DONALD DUCK'S PLAYGROUND	18.00
DOS TO DOS	37.82
DOUG'S MATH AQUARIUM	58.46
DPAINT ART&UTIL. DISK #1	21.60
DR. FRUIT	19.46
DR. T'S CAGED ARTIST EDITORS	CALL
DR. T'S BACH SONGBOOK	19.95
DR. T'S DRUMS	19.95
DR. T'S KCS	161.98
DR. T'S DR. KEYS	19.95
DR.XES	34.34
DRAW PLUS (AEGIS)	162.48
DRUM STUDIO	32.47
DYNAMIC DRUMS	*49.98*
DYNAMIC STUDIO 1.2	*142.96*
DYNAMIC WORD	124.38
DYNAMIC-CAD	340.32
EARL WEAVER BASEBALL	34.95
EASY LOANS	25.00
EBONSTAR	25.96
EMERALD MINES	13.97
EMPIRE	34.32
ENCHANTER	20.59
EUROPEAN SCENERY DISK	17.95
EXCELLENCE!	*195.00*
EXPLORER, THE	36.22
EXPRESS PAINT	62.50
EXTEND	25.96
FACC II	21.85
FAERY TALE ADVENTURE	31.23
FAERY TALE GUIDEBOOK	7.76
FERRARI FORMULA ONE	33.57
FEUD	12.96
FINAL TRIP	19.46
FINANCIAL COOKBOOK	14.40
FINANCIAL TIME MACHINE	31.16
FIREPOWER	15.60
FIRST LETTERS & WORDS	33.00
FIRST SHAPES	33.00
FLEET CHECK	25.96
FLIGHT PATH 737	16.21
FLIGHT SIMULATOR II	37.46
FLIP FLOP	9.75
FLIPSIDE	37.48
FLOW	62.32
FONTS AND BORDERS	22.72
FOOTBALL FACTS	42.97
FOOTMAN	21.95
FORMS IN FLIGHT	44.95
FORTRESS UNDERGROUND	13.23
FOUR IN ONE	18.68
FRACTION ACTION	31.23
FROST BYTE	19.46
GALACTIC INVASION	16.22
GALAXY FIGHT	16.23
GALILEO 2.0	49.95
GANYMED	21.95
GARRISON	29.19
GARRISON II	35.71
GEE BEE AIR RALLY	29.95
GEOMETRIC LIBRARY	11.88
GETTYSBURG	38.95
GIZMOZ 2.0	39.95
GNOME RANGER	13.23
GOLD DISK FONT SET #1	21.85
GOLD SPELL	28.10
GOLD SPELL II	29.95
GOLDEN PATH	29.21
GOLDEN PYRAMID (GAMESHOW)	24.03
GOLDRUNNER	24.98
GOMF	22.72
GRABBIT	20.59
GRAND SLAM TENNIS	31.25
GRAPHICS STUDIO, THE	38.96
GREAT STATES	24.99
GREAT STATES II	25.96
GRID START	16.22
GRID, THE	34.34
GRIDIRON-FOOTBALL GAME	*9.95*
GUILD OF THIEVES	30.90
HACKER II	27.46
HAICALC	30.80
HALLEY PROJECT	30.90
HARDBALL	28.12
HARRIER COMBAT SIMULATOR	32.95
HARRIER MISSION	16.21
HEAD COACH	32.47
HEX	24.95
HITCHIKERS GUIDE	20.59
HOLLYWOOD HIJINX	27.47
HOLLYWOOD POKER	25.96
HOME BUILDERS CAD	129.96
HOT & COOL JAZZ	21.60
HOT LICKS	27.59
HUNT FOR RED OCTOBER	27.46
IMPACT-BUSINESS GRAPHICS	62.46
INDOOR SPORTS	31.22
INOVATOOLS I	51.96
INSANITY FIGHT	25.96
INSTANT MUSIC 1.2	33.00
INTELLITYPE	35.17
INTERCEPTOR	*37.95*
INTERCHANGE	29.22
INTERCHANGE CONVERSION	16.95
INTERCHANGE OBJECTS #1	16.95
INTO THE EAGLE'S NEST	28.56
INTROCAD	49.95
INVESTOR'S ADVANTAGE	64.97

We carry over 800 products. Call for unlisted items.

IT'S ONLY ROCK & ROLL	21.60
J FORTH	68.74
JET	37.46
JET SET FONT SET	32.50
JEWELS OF DARKNESS	19.95
JINXTER	25.95
KAMPFGRUPPE	41.22
KARA FONTS	*54.95*
KARATE KID II	25.97
KARATE KING	15.56
KARTING GRAND PRIX	16.22
KEY TO C	22.72
KEYBOARD CADET	27.47
KICKWORK	19.46
KIDTALK	31.95
KINDERAMA	31.23
KINDWORDS	62.50
KING OF CHICAGO	34.34
KING'S QUEST I,II,III	32.95
KNIGHT ORC	30.90
KWIK SPEAK	28.04
LAND OF LEGENDS	CALL
LARRIE	12.96
LATTICE C 4.0	162.47
LATTICE C PROFFESIONAL	212.47
LAZERSCRIPT	28.10
LEADER BOARD TORNA DISK	14.00
LEADER BOARD-GOLF GAME	27.00
LEARNING THE ALPHABET	19.46
LEATHER GODESSES OF PHOBOS	27.47
LEATHERNECK	25.96
LEISURE SUIT LARRY	26.40
LEXCHECK	26.85
LIBYANS IN SPACE	19.97
LINKWORD LANGUAGE SERIES	20.55
LINT (GIMPLE)	63.70
LION'S AMIGA ART STUDIO	*38.97*
LISP 1.3-BY METACOMCO	137.47
LITTLE DRAGON	12.96
LITTLE RED HEN	19.48
LOGIC WORKS	62.47
LOTTERY MAGIC	19.21
LPD FILER-DBASE	81.23
LPD PLANNER-SPREADSHEET	81.23
LPD WRITER-WP	81.23
LURKING HORROR	25.96
MAD LIBS	12.48
MAGICAL MYTHS	32.47
MAGICIAN'S DUNGEON	21.84
MARAUDER II	27.47
MARBLE MADNESS	33.00
MASTER TYPE	27.47
MATCH IT	25.71
MATH MAGICIAN	27.49
MATH TALK	31.25
MATH TALK FRACTIONS	24.95
MATH WIZARD	31.23
MATH-AMATION	64.95
MAVIS BEACON TYPING	30.89
MAXIPLAN 500	93.13
MAXIPLAN PLUS	124.40
MEAN 18 COURSE DISK	14.96
MEAN 18 GOLF	28.77
METACOMCO ASSEMBLER	68.72
METACOMCO PASCAL	68.72
METACOMCO SHELL	48.10
METACOMCO TOOLKIT	34.34
METASCOPE DEBUGGER	59.95
MICROFICHE FILER	69.95
MICROLAWYER	37.47
MINDWALKER	34.34
MIND FOREVER	27.47
MIND LIGHT 7	153.95
MISSION ELEVATOR	34.95
MOEBIUS	39.95
MONEY MENTOR	59.98
MOONMIST	27.47
MOUSETRAP	12.96
MULTI-FORTH	59.95
MULTI-PREFS	19.45
MUSIC MOUSE	51.35
MUSIC STUDENT	37.48
MUSIC STUDIO, THE	34.35
NANCY-SPELLING CHECKER	34.34
NEWSLETTER FONTS COLOR	19.50
NIMBUS 1:RECORD KEEPER	93.80
NINJA MISSION	13.00

OBLITERATOR	25.99
OGRE	32.46
OMEGA FILE	54.99
ONE-ON-ONE	14.40
ONLINE 2.0	43.56
OO-TOPOS	19.48
ORGANIZE	62.32
OUTLINE	31.25
PAGE FLIPPER	31.23
PAGESETTER	93.72
PALADIN	25.95
PAWN, THE	30.90
PEOPLE METER	48.70
PERFECT SCORE	54.97
PERSECUTORS	13.23
PHANTASIE	27.47
PHANTASIE 3	24.95
PHASAR-FIN'L MGMT	62.48
PHOTON PAINT	*64.96*
PHOTOSYNTHESIS	97.95
PINBALL I.Q.	19.46
PINK PANTHER	28.56
PIXMATE	45.47
PLANET PROBE	19.46
PLUTOS	19.46
PORTAL-ADVENTURE GAME	34.35
PORTS OF CALL	29.71
POWER PACK	22.95
POWERWINDOWS 2.0	62.46
PRE CALCULUS	36.33
PRINTMASTER PLUS	31.23
PRISM PLUS	45.43
PRO MIDI STUDIO	130.38
PRO VIDEO CGI	144.00
PRO VIDEO FONT SET #1	72.00
PRO VIDEO FONT SET #2	72.00
PRO VIDEO PLUS	184.95
PROBABILITY THEORY	36.22
PROFESSIONAL PAGE	247.50
PROJECT D	31.23
PROMISE:SPELLING CHECKER	34.36
PROWRITE 2.0	78.10
PUBLISHER PLUS	124.98
PUNCTUATION SERIES	19.46
PUPPY LOVE	18.68
Q-BALL	21.41
QUARTERBACK-HARD DISK BACKUP	45.47
QUINTETTES	30.90
QUIZ MASTER	49.98
QUIZAM	23.10
R.R. AESOP'S FABLES	19.48
READ & RHYME	31.23
READ-A-RAMA	31.23
REASON:AT&T WRITERS W.B	271.56
RETURN TO ATLANTIS	34.32
ROAD TO MOSCOW	29.97
ROADWAR 2000	27.47
ROADWAR EUROPA	29.21
ROADWARS	23.95
ROCKFORD	23.95
ROGUE-ADVENTURE GAME	27.46
ROLOBASE PLUS	58.46
ROMANTIC ENCOUNTERS	25.95
SAF-T-NET HD BACKUP	32.46
SANTA PARAVIA & FIUMACCIO	19.46
SARGON III	35.75
SCENERY DISK #11 EAST COA	18.72
SCENERY DISK #7 EAST COAS	18.71
SCRIBBLE	62.32
SCULPT-3D	69.95
SDI:CINAMAWARE SERIES	34.34
SEASONS AND HOLIDAYS	21.60
SEVEN CITIES OF GOLD	14.40
SHADOWGATE	31.23
SHAKESPEARE	146.25
SHANGHAI-STRATEGY GAME	27.46
SHERLOCK	27.00
SILENT SERVICE	25.95
SILICON DREAMS	19.95
SINBAD & FALCON	34.34
SKYFOX 1.2	14.95
SLAYGON	25.96
SMOOTH TALKER	33.95
SOFTWOOD FILE SG	78.21
SOFTWOOD LEDGER V1.2	62.48
SONIX (AEGIS)	49.98
SOUNDLAB MIRAGE	209.95
SOUNDQUEST SYNTH EDITORS	CALL

SOUNDSCAPE UTILITIES 1	35.71
SOURCE LEVEL DEBUGGER	57.16
SPACE BATTLE	16.96
SPACE FLIGHT	19.46
SPACE MATH	29.95
SPACE PORT	27.38
SPACE RANGER	13.00
SPACEQUEST	33.00
SPELLBOUND	25.96
SPELLER BEE	31.25
STAR GLIDER	30.90
STARFLEET I	36.30
STATION FALL	27.47
STELLAR CONFLICT	25.95
STOCK MARKET-THE GAME	16.21
STRIP POKER	27.46
STRIP POKER DATA DISKS	12.97
STUDIO FONTS V1 (COLOR)	19.50
STUDIO MAGIC	64.95
SUB BATTLE	32.95
SUPER HUEY-COPTER GAME	23.36
SUPERBASE	93.73
SUPERBASE PROFESSIONAL	195.00
SURGEON, THE	31.23
SYMPHONY SONGS (EACH VOL)	15.95
SYNTHIA	59.95
SYSTEMS MONITOR	28.95
T & L GALLERY	9.95
TALES FROM ARABIAN NIGHTS	31.95
TALKER-TALKING WP	48.10
TALKING COLORING BOOK	18.73
TASS TIMES IN TONETOWN	27.46
TELEGAMES	23.95
TELEWARS	24.97
TEMPLE OF APSHAI	27.46
TERRORPODS	25.77
TEST DRIVE	34.95
TEXTCRAFT PLUS	64.93
TEXTPRO	49.95
THAI BOXING	14.26
THEXDER	23.95
THREE LITTLE PIGS	19.48
THREE STOOGES	35.95
THUNDERBOY	22.71
TIME BANDITS	22.09
TOOL CADDY	32.46
TRANSCONTINENTAL RAILROAD	25.96
TRIGONOMETRY	36.22
TRINITY	27.47
TRUE BASIC	68.72
TURBO	CALL
TURBO SILVER	*129.95*
TV SHOW	65.01
TV TEXT	62.32
TXED PLUS	51.95
TYPING TUTOR WORD INVADER	22.73
ULTIMA III	28.57
ULTRA DOS	37.95
UNCLE D CON SOUND TRATION	25.97
UNINVITED	34.34
VADER	19.46
VAMPIRE'S EMPIRE	29.21
VIDEO EFFECTS 3D	129.96
VIDEO VEGAS	24.10
VIDEOSCAPE 3D	124.98
VIDEOTITLER	99.95
VIP PROFESSIONAL	103.10
VIZAWRITE	93.75
VOCABULARY IMPROVEMENT	19.95
VYPER	21.95
W SHELL	31.16
WBEXTRAS	24.95
WESTERN GAMES	31.95
WINDOW PRINT II	22.75
WINNIE THE POOH	16.50
WINTER CHALLENGE	9.95
WINTER GAMES	27.46
WISHBRINGER	10.25
WORD MASTER	29.95
WORD PERFECT	219.00
WORD PERFECT LIBRARY	*84.50*
WORKS, THE	124.97
WORLD GAMES	27.46
WRITE 'N' FILE	59.95
X-CAD	*399.00*
ZING	49.98
ZING KEYS	31.25

ZING! SPELL	57.95
ZOOM!	*21.95*
ZORK TRILOGY	48.10
ZUMA FONTS VOL 1,2,3	21.85

HARDWARE

15' CAMERA CABLE	12.97
ALEGRA WITH 0K	166.95
ALPS ALQ300 COLOR 24PIN	599.00
AMIGA 2052 2 MEG RAM	*399.00*
AMIGA LIVE!	270.00
AMIGEN GENLOCK	149.95
ASDG 8 MEG BOARDS W/0K	399.00
AVATEX 2400 BAUD MODEM	229.18
BYTE BOX 0K-RAM OPTIONAL	249.00
C LTD 33 MB A1000 HD	*799.00*
C LTD 50 MEG HD	*899.00*
C LTD 512K UNPOPULATED	49.95
C LTD SCSI CNTRLR A1000	219.95
CA-880 FLOPPY DRIVE	219.00
CLEANING KIT (SMALL)	8.95
CPS 500-POWER SUPPLY A500	74.97
EASYL TABLETS (ALL AMIGAS)	369.00
ECE MIDI 500/ 2000	48.71
ESCORT 2 UNPOPULATED	*249.00*
ESCORT 500 UNPOPULATED	309.00
EXP-1000 1M A500	*479.95*
EXP-1000 1M UNPOPULATED	*219.95*
FLICKER FIXER (HARDWARE)	*499.00*
FUTURE SOUND-AUDIOSAMPLER	142.20
IMPACT SCSI/1M RAM	541.20
IMPACT SCSI/512K RAM	429.95
KWICK START	149.47
MICRON 2 MEG FOR A2000	*499.00*
MICRON 2 MEG FOR A500	CALL
MIDI GOLD	64.20
MINISCRIBE 20MB 3.5" FAST	329.00
MINISCRIBE 8051S SCSI 40M	615.00
NEC COLOR P6	621.20
NEC P2200 PRINTER	*399.00*
OKIMATE 20 W/PLUG N PRINT	199.00
OVERDRIVE HD CONTROLLER	199.95
PANASONIC WV1410 CAMERA	224.96
PANASONIC WV1500 CAMERA	319.95
PERFECT SOUND	67.47
PERFECT VISION	*169.95*
PRODRIVE	219.00
PRODRIVE 2000	149.00
QUANTUM PRODRIVE 80S	1199.00
SCRIBE-CARD 30 FOR 2088D	420.00
SPIRIT 0 MB FOR A1000	249.00
SPIRIT 0 MB FOR A500	249.00
STAR NB24-10	545.96
STAR NX1000 PRINTER	199.00
STAR NX1000 RAINBOW	249.95
STARBOARD 2 PRODUCTS	CALL
SUBSYSTEM 500	199.95
SUPERGEN	699.00
SUPRA 2400 MODEM	*152.49*
SUPRA DRIVE 20 MEG A1000	699.00
SUPRA DRIVE 20 MEG A500	699.00
SUPRA DRIVE 30 MEG A1000	859.00
SUPRA DRIVE 30 MEG A500	859.00
VI 2000 RF	79.95
XEROX 4020 INK JET COLOR	1140.00

ACCESSORIES

Yes, we carry accessories! Everything from blank disks to joysticks to Amiga dust covers to printer accessories to copy stands to computer cables to RGB encoders to power strips to modems, & much more! Unfortunately, there's too much to list here, so *please* call us for anything and everything you need for your Amiga that isn't listed here. THANK YOU!

Creative Computers is both a mail order company with a store's support and three store showrooms with mail order prices. If possible, drop by a store and you will be **Amazed!**

Store front addresses:

318 Wilshire Blvd, Santa Monica, CA 90401
Tues. - Sat. 11-7 p.m., Sun. 11-5 p.m. phone: (213) 394-7779
4453 Redondo Beach Blvd., Lawndale, CA 90260
Mon - Sat. 11-7 p.m. phone: (213) 542-2292
2112 E. Thompson Dr., Ventura, CA 93001
Tues - Sat 11-7 p.m., Sun. 12-5 p.m. phone: (805) 652-0325

MINIMUM ORDER: $20
SHIPPING INFO: 1% surcharge for Visa and MasterCard; call for shipping rates.
INTERNATIONAL PHONE & MAIL ORDERS ACCEPTED
RETURN POLICY: Defective merchandise under warranty will be repaired or replaced. Returned product must be in original package. We do not offer any refund on defective products or for products that do not perform satisfactorily. We make no guarantees for product performance.
CONDITIONS: Creative Computers reserves the right to limit the sale of any items to local in-person pick-up only. Prices subject to change without notice.
WE ALSO RUN A 24 Hr. BBS: Call (213) 394-5988 with your modem.
SCHOOL AND LARGE COMPANYPURCHASE ORDERS ACCEPTED.

Circle 199 on Reader Service card. **Visit one of our stores soon!!**

WHAT'S NEW?

Bringing you the latest products

from far and wide.

Compiled by Barbara Gefvert and Linda Barrett

Logical Graphics

WHETHER YOUR interests are scientific or artistic, VS Graphics has something to please. **Logic Lab** ($29.95) teaches digital logic by letting you create logic circuits from basic logic elements. Point and drag your elements into position; point at two elements and the program connects them. A strip chart shows the state of inputs and outputs as you build. The software's interpreter then simulates the cirucits. For the artist, the **Condis** package of utility programs ($19.95) converts IFF graphic images into IBM format. Send your images from IFF formats of 320 × 200 in two, four, or five bitplanes to IBM's CGA, EGA, and VGA formats respectively. Send your questions to VS Graphics, PO Box 518, Hatfield, PA 19440.

Data Duo

SHHH! THE **FData 10** single-floppy drive ($149.95) and the **FData 20** ($299.95) dual-floppy drive promise to sit quietly alongside your Amiga and keep a low profile. Flexible Data Systems, 10503 Forest Lane, Suite 148, Dallas, TX 75243, 214/669-3999.

Till There's a Cure

A SILICON vaccination, **Virus Infection Protection** (V.I.P.) cannot repair an infected disk, but will seal your healthy disks against viruses. The intuition-based program is available in English, German, Danish, French, Italian, and Spanish for $49.95. For information on preventative medicine, contact Discovery Software International, 163 Conduit St., Annapolis, MD 21401 800/342-6442.

Designing Aid

IF YOU'RE IN need of drafting help, **UltraCAD** from Progressive Peripherals & Software could be your new assistant. Besides offering the standard CAD features, the design program lets you compile drawing elements into template libraries, Zoom into or Pan through your creations, and customize text relative to drawing or output size. Autodimensioning and the snap-to feature should make drawing easier, while the various layer-by-layer coloring features such as ghosting and dimming will make your creation livelier. You can set the coordinate system to either English or metric measurement. Instead of a salary, UltraCAD will go to work for a one-time flat fee of $249.95. For references, contact Progressive Peripherals & Software, 464 Kalamath St., Denver, CO 80204, 303/825-4144.

Officer in the Color Force

DOUG'S COLOR Commander lets you change the colors in non-HAM system screens and IFF files. Rather than altering RGB components one color at a time, you can change all 32 colors at once. Spice up your artwork for $29.95. Send your questions off to Seven Seas Software, PO Box 411, Port Townsend, WA 98368, 206/385-1956.



To rhapsodize in blue, sweep the scale or click on bars singly.

Free from Sight

THE AMIGA 500 Freedom Machine brings Amiga power to the blind. The Freedom Machine system includes computer, monitor, and 2400-baud modem, as well as Mouse-Free A-Talk, a talking terminal emulator that is completely keyboard controlled. Plans are in the works for a talking word processor, database, and spreadsheet, as well. All documentation and installation instructions are in Braille and on cassette, as well as in standard print for sighted friends. Cables and connections are marked in Braille and large raised print. The system lists for $1950; contact Inspired Interfaces, 30 Warren Ave., Amesbury, MA 01913, 617/388-3736. ►

Amiga is a trademark of Commodore-Amiga, Inc.

AMIGA – Users!

COMMODORE AMIGA Authorized Dealer

We are a Dallas based Wholesale Company selling Amiga Products since 1985 to customers in over 30 nations. You may have seen our full page adds in **Amazing Computing** or **Computer Shopper**. Now, for the first time we offer our service also to the **Amiga World** readers ! InterComputing Inc. is a Member of the BETTER BUSINESS BUREAU in Dallas.

Here is an overview of some of the AMIGA products we stock.

Starboard2 Memory cards:

Microbotics

Versions for the A500, A1000 and A2000

FrameGrabber™

Real Time Video Image Digitizer

The super high quality real time Color Digitizer from Progressive Peripherals !

$ 499.00 (Call for Demo Disk!)

Miniscribe Hard Drives for the A2000

20MB ST-506	$ 275
20MB SCSI	$ 349
42MB SCSI	$ 495

Flicker Master

Reduces Interlace Flicker dramatically. For the price-conscious customer who doesn't want to buy a high persistence monitor or Flicker Fixer. $9.50

Flicker Fixer $ 499.50

Get rid of interlace Flicker; PERIOD !

Mitsubishi AUM 1371A

The perfect Monitor for Flicker Fixer $ 499.50

EMPIRE

ELECTRONIC ARTS

$ 31.50

Butcher



Powerful conversion and processing utility for digitized graphics ! $ 21.50

Sculpt 3D

$ 64.75 (NTSC or PAL)

ANIMATE 3D

only $ 99.50

Deluxe Photo Lab

ELECTRONIC ARTS

$ please call for pricing !

PCM-Industries

PCM Fonts

Vol. 1,2 and 3 $ 27.50 each

Comic-Helper



A fun collection of comic art and a 'How to' guide for a very special kind of graphics. Full IFF compatible.

Vol. 1,2 and 3 only $27.50 each

Anti-Virus 2.0

Virus-protection and 'Boot Track' backup! A 'must' if you use PD-Software or download from BBS's Systems. $39.95

Laser Sound

Professional PCM-Sound samples in IFF format. Compatible with most Sound editors for the Amiga ! Volume 1,2 and 3 only $27.50 each

Pro Gen

$ 375.00

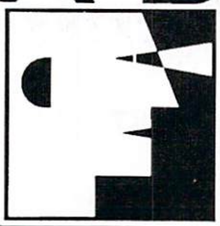
Super Gen

$ 695.00

excellence!™

The "Power" Word Processor $ 189.50

X-SPECS 3D



The dawn of a new generation of computer graphics ! 3D-Effects on your Amiga-screen in full color ! Special LCD-Shutter-Glasses allow incredible effects. A 3D-Space Game is included !

$97.50

MasterCard — and more (please call for a complete Listing) — VISA

InterComputing Inc.

2100 N. Hwy 360, Suite 2101
Grand Prairie, TX 75050-1015

Phone : 800-531-4747
(in TX call 214-988-3500)

We stock a full line of Amiga soft and hardware since 1985.
Most of our employees own an Amiga and use the available products.
We may be new to you, but we're experienced with the Amiga !
Check our prices, and you'll see that we are very competitive.
Our Terms are easy: Up to 10lb S/H is 3.00$ in the US for UPS-Ground.
If it's over 10lb or if you want special delivery you pay the actual Freight Charge.
That's it. No COD-Fee/Creditcard surcharge etc. Fair enough ?

TEAM SPIRIT

TO MAKE IT easier for you, The Disc Company, Oxxi Inc., and Software Visions are working together on **Critic's Choice Productivity Package**. Comprised of KindWords, MaxiPlan, and Microfiche Filer, the package combines business essentials—a word processor, spreadsheet, and database. The bundle is priced at $249.95. For more information, contact the project's coordinator, The Disc Company, 3135 South State St., Ann Arbor, MI 48108, 313/665-5540.

ORGANIZE YOUR ROOTS

THE IMMEDIATE FAMILY is hard enough to keep track of, never mind remembering all your ancestors. MicroMaster has a solution: **Your Family Treé**, a genealogy database. The program can catalog 65,534 individuals with up to eight spouses and 40 children per person. Each record includes complete names, titles, sex, place of birth, dates of christenings, marriages, and death, plus a 4000-character memo field. For family reunions, you can print charts and trees. Keep track of all your forebears and cousins for $49.95. Contact MicroMaster Inc., 1289 Broadhead Rd., Monaca, PA 15061, 412/775-3000.

ABBREVIATED ASSEMBLY

THE **AMASDIS** assembler/disassembler/linker uses just 50 generic 68000 instructions with four-character mnemonics to speed your work, but you can expand the set to 100 instructions and add your own mnemonics. AMASDIS features interactive automode assembly, relocatable object modules, and a definable RAM buffer of up to 32K for parameter passing. The assembly system is $39.95 from Aelen Electronics, 407 W. 40th St., New York, NY 10018, 212/629-4003.

HIGH SEAS HIJINX

WHO KILLED RENE Vallette? What do the button and the paper clip *really* mean? These and 14 other questions, plus untold mysteries await detectives aboard the S.S. Bourgogne in **Murder On The Atlantic**. The year is 1938. You are given over 60 clues, and must search booby-trapped rooms for the 40 suspects. Each game package includes a contest entry form; the sleuth who submits the most correct answers for the 16 questions will win $10,000. For $39.95, book passage with IntraCorp., 14160 S.W. 139th Ct., Miami, FL 33186, 305/252-9040.

BASICALLY...

IT'S NOT JUST for the Atari ST any more. After two years of evolution, **GFA BASIC 3.0** is here for the Amiga. With its structured form and lack of line numbers, GFA is not your traditional BASIC program. Features include an interactive editor, reentrant program code, and graphic support that lets you create a filled polygon with one command. The Menu Construction Tool helps you build menu lists and pull-downs. GFA Amiga is compatible with the Atari ST version, so current program listings are within your reach. Get down to GFA BASIC for $99.95 with MichTron, 576 Telegraph, Pontiac, MI 48053, 313/334-5700.

FLY TO LEARN

PILOT IS NOT another flight simulator. It's Programmed Inquiry, Learning, or Teaching—an authoring language for computer-based instruction. The Amiga version lets you import IFF files—even in Extra Halfbrite and HAM modes. It also supports overscan. Features include program flow control, text input matching, computation, text output including special effects, and answer input including touch-panel and mouse. Small modifications will convert IBM, Apple, and other PILOT programs to the Amiga. For details contact Terry LaGrone, PO Box 91723, Anchorage, AK, 99509-1723, 907/276-6719. Orders only: Flight Training Devices, 312 Imperial Ave., El Segundo, CA 90245, 800/321-9139.

A DIFFERENT ESSENCE

IT WAS TEXTURE, but now it's **The Quest Sequencer Stage 1: Texture**. It did require a Roland MPU-401 and Music-Soft interface, but now a standard MIDI interface will do. The price is lower ($150), but otherwise it's the same—all Texture 2.4 features are included. Contact Sound Quest Inc., 5 Glenaden Ave. E., Toronto, Ont., Canada M8Y 2L2, 416/234-0347.

URBAN RENEWAL

CITY DESK 2.0 offers text flow around irregular graphics, scalable PostScript fonts and landscape printing in PostScript, a full-screen sizable text editor, movable columns, and auto-hyphenation with exceptions dictionary. You can also import HAM graphics into the civic environment now. Get the package for $199.95 (or an upgrade for $35) from MicroSearch, 9896 S.W. Freeway, Houston, TX 77074, 713/988-2818.

TURN IT UP

IS YOUR A2000 too soft spoken? The **Audio 2000** is a stereo amplifier designed to mount in an A2000 ST-506 slot. Audio 2000 offers replacement controls for the standard power and hard-drive lights, plus up-front volume controls and headphone connection. The unit drives four to eight ohm speakers, provides over four watts per channel, and promises less than one percent distortion. Hear the difference for $79.95 at Day's, 17538 Glen Rd., Gambier, OH 43022.

COVERT COLOR

LISTEN . . .DO you want to know a secret? You can learn the pro's techniques in **Secrets of the Computer Artist**, a videotape available in VHS and Beta versions. Successful Amiga artist Sheryl Knowles demonstrates commands such as fill and merging screens, and how to use color cycling to create motion with Amiga paint programs. Get the classified information for $21.95 from Oasis Productions, Suite 2123, 550 S. Barrington, Los Angeles, CA 90049.

64 #2

THE 64 EMULATOR version 2 offers many new features. You can now read 1584 disks on Amiga 3½-inch drives and 1541/1571 disks on Amiga 5¼-inch drives. You can power C-64 printers from Amiga software, and transfer protected programs to Amiga disks with the Freeze option. ReadySoft has also worked to improve raster interrupts and sprites. Contact ReadySoft Inc. (PO Box 1222, Lewiston, NY 14092, 416/731-4175) for information on the four upgrading methods. ■

GO AMIGO!™

THE WORLD'S LARGEST DISTRIBUTOR OF AMIGA™ PRODUCTS

HARDWARE SPECIALS

SCSI Hard Cards

- Takes up one A2000 Slot
- Does not use Drive Bay • DMA
- AutoBoot with 1.3 • 28 MS Access

30MB: **$749** 50MB: **$899** *Other Sizes Available.*

flickerFixer™ $499
from Microway

- Compatible Monitors from $450
- Ends Hi Res Flicker Now!
- A2000 Only

A1000 Owners:

We have RAM Expansion, Hard Drives, Digitizers & More — Just for You!

Don't Be Left Behind!

Why buy from GO AMIGO?

- Three Years in Business
- Amiga Only
- Largest Inventory
- Published Policies
- Fast Shipping
- Mainframe Order Processing System
- Latest Versions
- Competitive Pricing
- Outstanding Service
- Non-Commission Sales Staff
- No Credit Card Surcharge

HARDWARE...HARDWARE...HARDWARE...HARDWARE

A-SQUARED
New! Live! A1000 ... $259
New! Live! A500 ... Call

ACCESS ASSOCIATES
Alegra 512K ... Call

AMAZING DEVICES
Time Lord ... $ 34
Programmer's Reference ... $ 15

AMICORE
New! Transvestor 2500 ... Call

ANAKIN
Easyl ... $399
Easyl 500/2000 ... Call

ANCHOR AUTOMATION
Omega 80 ... $165

APPLIED VISIONS
Futuresound ... $144

ASDG
8MB Board ... *In Stock!*
RAM Boards/Boxes ... Call
Satellite Board ... Call

AVATEX
1200HC Modem ... $115

BYTE BY BYTE
Byte Box for the A500/A2000 ... *In Stock!*
TIC ... $ 49

C. LTD.
C View Cables ... $ 39
Timesaver ... $ 64

CREATIVE MICROSYSTEMS
Kickstart Eliminator ... $109
RF Modulator for the A500 ... Call
New! Video Interface for the A2000 ... Call

CSA
New! Bernoulli Boxes ... Call
New! Over 30 Board ... Call
New! 68020 Boards for All Amigas ... Call
New! Turbo Hi-Rise ... Call

DIGITAL CREATIONS
SuperGen ... Call

ECE
MIDI-500 ... Call
New! MIDI-A1000 ... $ 58
New! MIDI-A2000 ... $ 58

EPSON
EX-800 ... Call
New! *All models available* ... Call

EXPANSION TECHNOLOGIES
New! Escort 2 ... Call
Escort 500 ... Call
New! Escort Hard Disks ... Call
New! External 3.5 Drive ... $174

FINALLY TECHNOLOGIES
Hurricane Accel. ... Call
works w/ A500, 1000, 2000

FUJI
10 D-S Disks ... $19.99

GO AMIGA
Disk Head Cleaner ... $ 15
30-Disk Case ... $ 10
New! ImageWriter II Cable ... Call
Printer Cables ... $ 25
Modem Cables ... $ 25
Mousepad ... $ 10
Sony Monitor Cable ... $ 35
New! Switch Boxes ... Call

GOLDEN HAWK TECH.
MIDI Gold ... $ 69

GREAT VALLEY PRODUCTS
New! A500 Interface ... Call
SCSI Controllr w/ RAM ... Call

HYPERTEC
New! Deluxe MIDI Interface ... $ 74

INKWELL
Light Pen ... $ 99

KETEK
A500 Command Center ... Call
New! Command Ctr. Deluxe ... Call

LOGICAL DESIGN
New! CA-880 3.5'' Drive ... $169

MICHIGAN SOFTWARE
A500 Expansion ... Call
Drive Ext. Cables ... Call
Insider ... Call
Multi-Start ... Call
Quickstart ... $149

MICROBOTICS
A2000 Adapter ... Call
A2000 Products ... Call
Multifunction ... Call
Starboard 2MB ... Call
Starboard2/A500 ... Call
Other Sizes Available

MICRON TECH
2MB for A2000 ... Call
New! A1000, A500 Boards ... Call

MICROWAY
Flicker Fixer ... $499

MIMETICS
AmiGen Genlock ... $157
Audio Digitizer ... Call
Frame Butter ... Call
MIDI Interface ... $ 45

NU-DATA
New! External SCSI Drives ... Call

OKIDATA
Oki20 Col. Ribbon ... $ 8
Oki20 Blk Ribbon ... $ 7
Okimate 20 with Plug n' Play ... $199

PACIFIC PERIPHERALS
OverDrive ... Call
SubSystem ... Call

PANASONIC
Camera/Lens for DigiView ... Call
New! Variable Iris Lens ... Call
1080i Mk II Printer ... $179
1091i Mk II Printer ... Call

PHOENIX
A500, '1000 H-Drives ... Call
CPS500 Pwr Supply ... $ 84
New! Sonic Speakers ... $ 89

PROGRESSIVE
New! Frame Grabber ... Call
ProDrive External ... $189
ProDrive for A2000 ... Call
ProGen ... Call

SCI-TECH
GenKey ... Call

SPIRIT TECHNOLOGIES
1.5MB for A1000 ... Call

SUN-RIZE
Perfect Sound ... $ 69
Perfect Vision ... $199

SURFSIDE COMPONENTS
New! Master 3A 3.5'' Drive ... $169

SUPRA CORPORATION
2400B Modem ... Call
Hard Drives ... Call

WICO
New! Trackball ... $ 39

XEROX
4020 Color Ink Jet ... Call

ELECTRONIC ARTS SOFTWARE

Aaargh ... $25
Adventure Construction Kit ... $19
Alternate Reality ... $29
Archon ... $19
Archon II ... $19
Arctic Fox ... $26
Arts Part I ... $19
Arts Part II ... $19
Awesome Arcade Pak ... $36
Bard's Tale ... $32
Battle Droidz ... $26
Black Cauldron ... $29
ChessMaster 2000 ... $30
Deluxe Music ... $63
Deluxe Paint II ... $84
Deluxe PhotoLab ... $74
Deluxe Print II ... Call
Deluxe Productions ... $144
Deluxe Video 1.2 ... $84
Donald Duck ... $19
DPrint Data Disk ... $25
Earl Weaver Baseball ... $35
Empire ... $36
Ferrari Formula 1 ... $36 *In Stock!*
Financial Cookbook ... $19
Golden Oldies ... $19
Gridiron ... Call
Hot & Cool Jazz Disk ... $24
Hunt for Red October ... $36
Instant Music ... $32
Instant Music Data ... $25
Intellitype ... $35
King's Quest 1,2,3 ... Call
Lounge Lizards ... $38
Mad Libs ... $16
Marble Madness ... $32
Mavis Beacon Teaches Typing ... $33
Mother Goose ... $23
New Tech. Color Book ... $17
One on One ... $19
Pub Games ... $26
Quizam ... $25
Reach for the Stars ... $33
Return to Atlantis ... $36
Roadwars ... $26
Rockford ... $26
Seasons & Holidays ... $23
Seven Cities of Gold ... $19
Skyfox ... $19
Skyfox II ... $29
Space Quest II ... $37
Starfleet I ... $36
Thexder ... $26
Winnie the Pooh ... $26

Current Specials: **FREE 1986 Teams Disk with Earl Weaver**
INTERCEPTOR — HERE NOW!

NEW PRODUCTS ARRIVE DAILY!

Circle 26 on Reader Service Card

EVEN MORE SOFTWARE!

ABACUS
- AssemPro $72
- BeckerText $114
- DataRetrieve $59
- TextPro $59
- → Amiga Machine Lang. $24
- → Amiga Tricks & Tips $17

Disks and other books available!

ABSOFT
- A/C Basic $139
- A/C Fortran $199
- Fortran 020 Call

ACCESS SOFTWARE
- Echilon Call
- Leader Board Dual Pack $26
- Tenth Frame $28
- World Class Leader Brd $29

ACCOLADE
- Apollo 18 $31
- Bubble Ghost $29
- Famous Course Disk $17
- Fight Night $34
- 4th & Inches $31
- Graphics Studio $42
- Hardball $37
- Mean 18 $27
- Pinball Wizard $29
- Power At Sea $31
- Test Drive $31
- The Train $31

ACS
- Brush Works 1 or 2 $24
- Grade Manager $69
- Music Student I Call
- Quiz Master $64

ACTIONWARE
- Capone $32
- Creature Call
- Phaser Gun Call
- P.O.W. Call

ACTIVISION
- Beyond Zork $35
- Gamestar Titles Call
- GeeBee Air Rally $28
- Lurking Horror $29
- Music Studio $38
- Portal $29
- Shanghai $29
- Sherlock Call
- Tass Times $29

ADDISON WESLEY
- Amiga Manuals Call
- Puppy Love $24

AEGIS
- Animator/Images $84
- Arazok's Tomb $32
- Art Pak 1 $24
- Audio Master $43
- Diga $56
- Draw Plus $149
- Images $26
- Impact $54
- Lights Camera Action Call
- Modeler 3D Call
- → Ports of Call $36
- Sonix $49
- Video Titler $119
- Videoscape 3D 2.0 $129

AMINETICS
- People Meter $53

ANCO
- Art Of Chess Call
- Flight Path 737 $19
- Grid Start $19
- Harrier Mission $19
- Karting Grand Prix $19
- Las Vegas $19
- Mike The Magic Dragon $19
- Sky Fighter $19
- XR35 $19

APPLIED VISIONS
- Sargon III *In Stock*

ARTWORX
- Bridge 5.0 $27
- Centerfold Squares $25
- Linkword Languages $24
- Strip Poker $32
- Strip Poker Data #4 $15
- Strip Poker Data #5 $15
- Thai Boxing $17

ASDG
- Cube Master $26
- FACC II $27

AVANT-GARDE
- Benchmark Modula-2 $139
- Benchmark C Library $74
- Benchmark IFF Library $74
- Benchmark Simplified $74

B.E.S.T. INC.
- General Ledger $65
- Business Mgmt. 2.0 $319

BANTAM SOFTWARE
- AmigaDOS Express $25

BAUDVILLE
- Video Vegas $29

BLANK SOFTWARE
- Sound Lab Amiga Call

BROWN-WAGH
- Express Paint 2.0 Call
- Publisher + $149
- Softwood File II sg $74
- Stellar Conflict $29
- TV*Show $74
- TV*Text $69
- Wordplex $35
- Write and File $79
- Zuma Fonts Call

BYTE BY BYTE
- Animate 3D Call
- Infominder $69
- Sculpt 3D $59
- Sculpt Animate Jr. $44
- Sculpt Animate Pro Call

C LTD
- Jet Set $35
- Jet Set Font Sets Call

CAPILANO COMPUTER SYS
- Logic Works $79

CENTRAL COAST SOFTWARE
- Disk 2 Disk $39
- Dos 2 Dos $39
- Precisely $64
- Quarterback $54

CINEMAWARE
- Defender of the Crown $31
- King of Chicago $31
- Lords of the Rising Sun Call
- Rocket Ranger Call
- SDI $31
- Sinbad $31
- Three Stooges *In Stock!*

COMMAND SIMULATIONS
- Blitzkrieg/ Ardennes $42

CDA
- LexCheck $34

COMPUTER ARTS
- Deluxe Maps Vol. 1 $19

CONSTELLATION
- Gnome Ranger $15
- Karate King $19
- Larrie & The Ardies $15
- Persecutors $15
- Space Battle $19

COSMI
- → Defcon 5 *In Stock!*
- Super Huey $26

CREATIVE SOLUTIONS INC
- Multi-Forth $79

CRYSTAL ROSE SOFTWARE
- Analytic Art $44

DATA RESEACH
- Key to C (V. 2.02) $25

DELTA RESEARCH
- J-Forth $89

DIGITAL CREATIONS
- Gizmoz $49

DIGITAL SOLUTIONS
- LPD Writer $99

DIGITEK
- Amegas Call
- Clever & Smart Call
- Drum Studio $35
- Final Mission Call
- Hollywood Poker Call
- → Thunder Boy $26
- Vampire's Empire *In Stock!*

DISC COMPANY
- → Critic's Choice $178
- Kind Words $74

DISCOVERY SOFTWARE
- Arkanoid $23
- Grabbit $24
- Marauder II $25
- → Zoom! Call

DISK-COUNT SW
- → Spelling Tutor $21
- → Vocabulary Tutor $21

DR. T
- All Products Call
- KCS $177
- The Copyist $149

EAGLE TREE SOFTWARE
- Butcher 2.0 $25

EIDERSOFT
- Amiga Karate $24
- → Casino Fever $32
- Pro Sound Designer Call

ELIPSYS
- → Encore *In Stock!*

EPYX
- California Games $29
- → Death Sword *In Stock!*
- Destroyer $29
- Dive Bomber $29
- Rogue $18
- Street Cat $19
- Summer Games $25
- → Sub Battle $36
- Temples of Apshai $16
- Winter Games $29

EQUAL PLUS
- Financial Plus $188

ESCAPE SEQUENCE
- Photosynthesis *In Stock!*

FINALLY SOFTWARE
- Dr. Xes $37
- Talker $46

FIREBIRD
- Black Lamp $19
- Carrier Command $33
- Enlightenment $19
- Guild of Thieves $32
- Jewels of Darkness $25
- Knight Orc $34
- Pawn $32
- Silicon Dreams $25
- StarGlider $33
- → StarGlider II Call
- Univ. Military Sim. Call

FIRST BYTE
- First Letters and Words $36
- First Shapes $34
- Kid Talk $34
- Mad Libs $16
- Math Talk $34
- Math Talk Fractions $34
- Smooth Talker $36
- Speller Bee $34

FIRST ROW
- Prime Time Call
- Twilight Zone Call

FREE SPIRIT
- Ultimate Dos Utils $46

FULLER COMPUTING
- Project D $37

FUTUREWORKS
- LexCheck $34

GIMPEL SOFTWARE
- Lint $85

GOLD DISK
- Comic Setter $74
- Font Set 1 $26
- → Gold Spell 2 $34
- Laser Script $35
- Page Setter $94
- Professional Page 1.1 Call

GRAPHIC EXPRESSIONS
- → Mastering CLI *In Stock!*

HAITEX
- A Drums Call
- Haicalc $44

HASH ENTERPRISES
- Animation Effects $35
- Animation Stand $35
- Animator Jr. $56
- Animator: Apprentice Call
- Apprentice Libraries Call

HILTON ANDROID
- Aesop's Fables $19
- Chicken Little $19
- Little Red Hen $19
- Three Little Pigs $19
- Ugly Duckling $22

HYPERTEK
- GOMF! 2.2 Call
- → GOMF Button Call

IMPULSE INC
- Silver $119
- Turbo Silver *In Stock!*

INFINITY SOFTWARE
- Galileo 2 $49
- Go Call
- Grand Slam $38
- Hot Licks $37
- → Shakespeare v1.1 $169

INNOVISION
- Video Effects 3D $142

INOVATRONICS
- CAPE 68K Call
- InovaTools Call
- Power Windows 2.5 $65

INTELLIGENT MEMORY
- Emmetic Skimmer Call
- Galaxy Fight $23
- Garrison $36
- Garrison II Call
- Mousetrap $20
- → TurboPrint $38
- Witchcraft $35

INTERACTIVE SOFTWORKS
- Calligrapher 1.06 $79
- Lion's Calligrafonts Call
- Newsletter Fonts $32
- Studio Fonts $32

INTRACORP
- Murder On The Atlantic *InStock!*

ISM
- Surgeon $39

JDK IMAGES
- Pro Video CGI $149
- Pro Video Plus Call
- Font Libraries $79

JENDAY SOFTWARE
- Convers. W/Computer $24

KARA
- KaraFonts $54

KFS
- The Accountant $199

KINGSOFT
- City Defense $16
- Emerald Mines $18
- FlipFlop $15
- Fortress Underground $16

KONAMI
- Boot Camp $31
- Contra $31
- Jackal $31
- Rush'n Attack Call

LAKE FOREST LOGIC
- Disk Mechanic $67

LAMPLIGHTER SOFTWARE
- Amix Call
- dbProfessional Call

LATTICE
- C++ Call
- C 4.0-Professional $284
- C 4.0-Regular $163
- → Compiler Companion $78
- dbc III Library $119
- Other Products Call

LIGHTNING PUBLISHING
- The Big Picture $23

LYNN'S LUNA C
- WB Extras $25

MAGIC BYTES
- Pink Panther $34

MAGNETIC IMAGES
- → Clip Art Disks 1-6 (Each) $15

MAGNETIC MUSIC
- Texture Call

MANX
- Library Source $199
- Aztec C-Dev. $199
- Aztec C-Prof. $149
- Source Level Debugger $57

MARKSMAN
- PHASAR 3.0 $61

MASTERTRONIC
- Fued $18
- → Kickstart 2 $17
- Ninja Mission $18
- Space Ranger $18

MERIDIAN SOFTWARE
- Demonstrator Call
- Zing! $49
- Zing! Keys $36
- → Zing! Spell $57

METACOMCO
- Cambridge LISP $154
- → ISO Pascal (New Version) Call
- Macro Assembler $79
- Shell $45
- ToolKit $35

METADIGM
- Metascope $79

MICHTRON
- Airball $28
- Cashman $24
- Karate Kid II $28

MICRODEAL
- Gold Runner $28
- Insanity Fight $29
- → Leathernecks $29
- Slaygon $29
- Time Bandits $28

MICRO ENTERTAINMENT
- Golden Pyramid Call

MICRO ILLUSIONS
- Black Jack Acad. $29
- Discovery Data Call
- Dynamic CAD Call
- Dynamic Word $139
- Ebonstar *In Stock!*
- Faery Tale $34
- Galactic Invasion $19
- Land of Legends Soon!
- Music X $219
- Photon Paint Call
- → Photon Paint Expansion $23
- Photon Video Call
- Planetarium $51
- Romantic Encounters $29
- → Tracers $27
- Turbo $19

MICRO MAGIC
- Forms in Flight 2.0 Call

MICROPROSE
- Silent Service $24

MICROSEARCH
- City Desk $110
- Art Companion Call
- Head Coach $39

MICROSMITHS
- TxEd Plus $57

MICROSYSTEMS SOFTWARE
- Analyze! 2.0 $74
- BBS-PC $106
- Excellence! $164
- Flipside! $31
- Online! $42
- Organize! $63
- Scribble! $61
- The Works! $144

MIDITALK
- TX81LIB $67

MIMETICS
- 3 Demon *In Stock!*
- SoundScape $130
- Utilities I $40

MINDSCAPE
- Balance of Power $31
- Blockbuster $27
- Bratacas $32
- Deja Vu $32
- Gauntlet Call
- Halley Project $30
- Harrier Combat $35
- High Roller Call
- Ice Hockey Call
- Indoor Sports $35
- Into Eagle's Nest Call
- Keyboard Cadet $29
- MasterType $29
- Perfect Score SAT $52
- Plutos Call
- Q-Ball $22
- Racter $28
- Shadowgate $33
- Uninvited $31

NEW HORIZONS SOFTWARE
- Flow $69
- Prowrite 2.0 $75

NEW TEK
- Digi-Paint 2.0 Call
- Digi-Droid $74
- → Digi-View 3.0 Call
- Video Toaster Call

NEW WAVE
- Sound Oasis *In Stock!*
- Dynamic Drums Call
- Dynamic Studio Call

OMNITREND
- Breach $29
- Breach Scenario $19
- Paladin $29
- Paladin Scenario $19

OPCODE SYSTEMS
- Music Mouse $49

ORIGIN SYSTEMS
- Autoduel $35
- Moebius $38
- Ogre $25
- Ultima III $39
- Ultima IV Call

OXXI INC
- A-Talk Plus Call
- Encore *In Stock!*
- MaxiPlan 500 $99
- MaxiPlan Plus $127
- Nimbus 1 $99

PDJ SOFTWARE
- AIRT $52

PEACOCK SYSTEMS
- CB Tree Call

PECAN
- UCSD Pascal Call
- Modula 2 Call

POLYGLOT SOFTWARE
- Crossword Creator $35
- Dominoes $18

PROFESSIONAL SW
- Fleet Check Call

PROGRESSIVE PERIPHERALS
- Access 64 Call
- CLImate $25
- DiskMaster $40
- DR Term Pro $79
- IntroCAD $63
- Logistix $85
- Mathamation Call
- MicroLawyer $42
- Pixmate $54
- Superbase Personal $89
- Superbase Prof $192
- Ultra Cad Call
- VizaWrite $81

PROLIFIC SW
- ProASM Call
- Pro Board $425
- Pro Net $425

PSYGNOSIS
- Terrorpods $28
- Arena $15
- Barbarian $28
- Deep Space

READY SOFT
- 64 Emulator 2 Call
- → Ganymed *In Stock!*
- → BombBusters *In Stock!*

RELINA
- Mission Elevator $38
- SpacePort $38
- Western Games $38

RGB VIDEO CREATIONS
- DeluxeHelp Call

Available for Deluxe Paint II, Photon Paint, and Calligrapher!

RIGHT ANSWERS GROUP
- The Director $49

SAXMAN SW
- → Modular Accounting Call

SEDONA SOFTWARE
- Money Mentor $74

SEVEN SEAS SW
- Color Commander Call
- Doug's Math Aquarium $59

SILVER SOFTWARE
- DNA Music Call
- Fractal Music Call
- Protein Music Call

SLIPPED DISK
- Lotto Magic $19

SOFT LINK
- MultiPrefs $23

SOFTGANG
- Final Trip $18
- → Power Pack (3 Games) Call
- Space Fight $18
- Vader $18

SOFT LOGIK
- Publisher Plus Call

SW ADVANTAGE
- Investor's Advantage $79

SW INTEGRATIONS
- Oriental Art $29

SOFTWARE TERMINAL
- Telegames $26
- Telewar $29

SOFTERWARE VISIONS
- Microfiche Filer $79

SOUND QUEST
- Patch Editors Call

SSI
- → Adv. Dungeons & Dragons Call
- → Gettysburg $42
- Kampfgruppe $46
- Phantasie $31
- Roadwar 2000 $32
- Roadwar Europa $31
- Wrath of Nicodemus $29

STAR SOFT
- Stock Market Game $19
- → Santa Paravia *In Stock!*

SUBLOGIC
- European Scenery *In Stock!*
- Flight Simulator 2 $32
- → Japan Scenery *In Stock!*
- Jet $37
- Scenery Disk #11 $20
- Scenery Disk #7 $18

SUNRIZE INDUSTRIES
- Desktop Artist $23
- Studio Magic *In Stock!*

SUNSMILE SOFTWARE
- → Extend *In Stock!*
- Home Inv Manager $27
- Video Cataloger $29

SYNDESIS
- Interchange $40
- Interchange Object $15

TAURUS
- X-Cad $425
- Acquisition Call

TDI SOFTWARE INC
- Amiga Editor $39
- Example Programs
- Modula-2/Comm. $207
- Modula-2/Dev. $109
- Amiga Grid File $39
- Modula-2/Std. $64

THE OTHER GUYS
- Promise $39
- Match It $29
- Reason Call
- Synthia Call

THREE-SIXTY
- Dark Castle $24

THUNDER MOUNTAIN
- → Winter Challenge *In Stock!*

TIGRESS
- Diskwik $36

TITUS
- Crazy Cars Call

TOP DOWN
- Footman Call
- Vyper $24

TRUE BASIC
- Developer's Toolkit $39
- Runtime Package $109
- True BASIC 2.0 $74
- Libraries (Each) $39

UNICORN
- Adv. of Sinbad $35
- Aesop's Fable $33
- All About America $42
- Animal Kingdom $35
- Arabian Nights $35
- Fraction Action $33
- Kinderama $33
- Logic Master Call
- Magical Myths $36
- Math Wizard $35
- Read & Rhyme $33
- Read-A-Rama $33
- Word Master $35

UNISON WORLD
- Art Gallery 1 or 2 $20
- Fantasy Call
- Fonts & Borders Call
- Print Master Plus $33

VIDEO VISIONS
- Data Disks For PageFlipper Call

VIP TECHNOLOGY
- Professional Call

VISUAL AURAL
- Mindlight 7 $178

WILLIAM HAWES
- ARexx $39
- W-Shell $39

WORDPERFECT CORP
- WordPerfect $199
- WordPerfect Library Call

ZEN SOFTWARE
- System Monitor $39

Our objective is to carry every product for the Amiga — and sell them at the best prices. Our policy is to be as competitive as possible on all product prices. If you find a lower price, give us a call.

Orders Only: **800-BE-AMIGA**™

In California: **800-843-2842**

Customer Service: **415-322-0686**

MasterCard VISA

Telex: 981975 ab:GO AMIGO *FAX:* 415-322-5356 *EasyLink:* 62044782

Send Mail Orders to: **GO AMIGO** 508 Waverley St., Palo Alto, CA 94301
(Money Order, Cashier's Check, or Qualified P.O. only. CA residents add sales tax.)

SHIPPING INFO: Software Shipping rates are $2.50/item using UPS Ground service (max. $7.50) or $4.50/item using UPS 2nd Day Air Service (max. $13.50). Other shipping methods available. Call for hardware rates. APO, Mail, foreign shipping extra. Call for more info. **RETURN & REFUND POLICY:** All returns must have an RMA-#. Call Customer Service to request an RMA-#. Defective merchandise under warranty will be repaired or replaced. Returned product must be returned postage prepaid with all original packaging. We do not offer refunds for defective products or for products that do not perform satisfactorily. We make no guarantees for product performance. Any money back guarantees must be handled directly with the manufacturer. **OTHER POLICIES:** We do not charge your card until the product actually ships. Purchase order customers must have credit application on file. No surcharge for VISA and MasterCard. When ordering with credit card, *PLEASE* include expiration date and name of bank! Call Fridays for unannounced specials.

Amiga is a trademark of Commodore-Amiga. Go Amigo is in no way associated with Commodore-Amiga.
Delivery subject to product availability • Prices subject to change • **Circle 26 on Reader Service Card**

HELP KEY

If you're behind the eight ball, take a cue from Lou and pocket your troubles.

By Louis R. Wallace

Bad BOBs

Q: *I read your comments about flickering Amiga Basic BOBs in the April '88 Help Key ("Safety First," p. 85) with distress! I had planned on using BASIC for animation. What should I use instead—C, PASCAL, Modula-2? Will I need a hard drive to use these languages? Do they support sound, speech, mouse, and joystick?*

I also need to generate a white noise sound. What would the wave array look like?

D. Lecompte
Boucherville, Quebec

A: Sorry to be the bearer of bad news, but Amiga Basic does not handle BOBs properly. In most cases, C and Modula-2 compilers can access all of the Amiga's features far better than Amiga Basic. Benchmarck Modula-2 from Avant Garde (2213 Woodburn, Plano TX, 75075, 214/964-0260) would fill your needs nicely, as would a C compiler from Manx (One Industrial Way West, Eatontown, NJ 10541, 800/221-0440) or Lattice (2500 S. Highland Ave., Lombard, IL 60148, 800/533-3577).

On the bright side, Commodore has requested that Microsoft correct some problems with Amiga Basic, including the flickering BOBs. The update will not be available until sometime next year when Commodore releases version 1.4 of the operating system.

As for the noise waveform, it has no shape or pattern and consists of random values. In Amiga Basic, the values fall between −128 and +127. Use the RND function to define the waveform.

Read More About It

Q: *Could you recommend a good Amiga-specific book on 68000 assembly programming?*

W. White
Las Vegas, NV

A: As of this writing, I have seen *Amiga Assembly Language Programming* ($13.95) by Jake Commander, published by TAB Books Inc. (13311 Monteray Lane, Blue Ridge Summit, PA 17294-0850, 717/794-2191), and ads for *Amiga Machine Language* ($19.95), published by Abacus Software (2201 Kalamazoo SE, PO Box 7219, Grand Rapids, MI 49510, 616/241-5510).

Say, Son

Q: *I want to use the SAY command to write talking letters to my son. Could you tell me how to use the SAY command from the CLI?*

T. Mitchell
Horseheads, NY

A: Open a CLI window, and type SAY HELLO THERE SON. After loading the translator device, the Amiga repeats aloud what you typed. As you know, the Amiga will recite the contents of an ASCII file; type SAY −x filename. Here's a complete list of SAY prefixes and their meanings:

- m male voice
- f female voice
- r robot voice
- n natural voice
- s## speed 40–400; 150 sounds best
- p## pitch 65–320; 110 sounds best
- x filename recite contents of filename

Another way to practice from the CLI is to type SAY and press Return. Two windows will open: one accepts your typed input and the other shows you the translated phoneme representation of what you typed. To quit, just press Return and you will return to the CLI.

Passing Parameters

Q: *How do I pass parameters (such as file names or data) to my AmigaDOS batch files when I execute them?*

J. Wine
Akron, OH

A: Passing parameters to AmigaDOS is not difficult. You use a technique called parameter substitution, which requires you to pass information along with the EXECUTE command and the batch file's name. Start off the batch file with the argument template using the .KEY directive, which defines a variable name for the incoming parameter. For example, to send a text file to the printer and the narrator, you could use the following batch file, SpeakPrint:

```
.KEY filename
RUN SAY -X <filename>
RUN TYPE <filename> TO
  PRT:
```

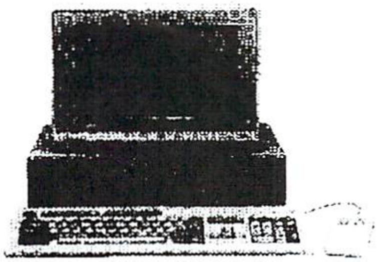
The .KEY directive indicates that the parameter information passed to this file will be used wherever the word "filename" is found. The file uses this information in the second line to speak the file, and in the third to type it to the PRT: device. If you have a text file called mailinglist, you could use SpeakPrint by typing:

```
EXECUTE SPEAKPRINT
MAILINGLIST
```

By the same method, you can pass multiple parameters. If you wanted to print four files with one command, for example, you would use the .KEY directive with the four variable names separated by commas.

```
.KEY FILE1,FILE2,
FILE3,FILE4
```

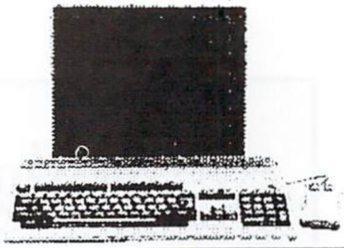
You would then pass four file names to the batch file. You can use parameter substitution with a variety of AmigaDOS commands, such as IF/ELSE/ENDIF, ECHO, COPY. For more information, see *The AmigaDOS Manual* (Bantam Computer Books, 666 Fifth Ave., New York, NY 10103, 212/765-6500). ■



COMMODORE AMIGA™

2000 SPECIAL

CALL FOR LOWEST PRICES



500 SPECIAL

AMIGA 500
1084 MONITOR
$$SAVE$$

HARDWARE

AMIGA 1010 3.5" EXTERNAL DR	205
PROGRESSIVE 3.5 EXTERNAL DR	199
AMIGA 3.5 INTERNAL DRIVE	150
MINISCRIBE 20 MD INT 3.5 DR	275
XEBEC 20 MB EXT DRIVE	799
AMIGA 501 512K MEMORY	150
AMIGA BRIDGE BOARD W 5.25 D	525
AMIGA 1300 GENLOCK	205
INSIDER BOARD	CALL
STARBOARD II 2MB	CALL
STARBOARD II 1MB	CALL
EPSON EX800 W COLOR	CALL
EPSON FX86E	CALL
EPSON FX 286E	CALL
EPSON LQ2500	CALL
OKIMATE 20 W INTERFACE	219
OKI ML 182 PLUS	247
OKI ML 192 PLUS	357
OKI ML 193 PLUS	472
OKI ML 292 PLUS	615
PANASONIC 1080I	199
PANASONIC 1091I	209
PANASONIC 1092I	328
PRINTER CABLE	20
EPYX JOYSTICK	17
MAXELL DISKETTES	
MF2-DD	18
MD2-DD	10
MD2-HD	20

SOFTWARE

ABSOFT	
AC BASIC	119
CA FORTRAN	177
ACCESS	
LEADER BOARD	24
TOURNAMENT DISK	12
TENTH FRAME	24
ACCOLADE	
MEAN 18	27
MEAN 18 COARSE DISK	12
TEST DRIVE	27
HARD BALL	27
ACS	
BRUSH WORKS	18
EFX	179
GRADE MANAGER	54
MUSIC STUDENT	36
QUICK MERGE	36
QUIZMASTER	48
STATION MANAGER	595
ACTIVISION	
BEYOND ZORK	
GOLF	24
FOOTBALL	24
GB AIR RALLY	24
HACKER II	24
LITTLE COMP PEOPLE	18
MUSIC STUDIO	30
PORTAL	27
SHANGHAI	24
TONETOWN	27
ADDISON-WESLEY	
HARDWARE MANUAL	18
INTUITION MANUAL	18
ROM KERNAL MANUAL	25
ROM EXEC MANUAL	18
AEGIS	
ART DISK	21
AROZOKS TOMB	24
AUDIO MASTER	36
DIGA	48
DRAW	75
DRAW PLUS	156
IMAGES	24
IMPACT	54
SONIX	48
VIDEOSCAPE 3D	120
VIDEO TITLER	60
AMIGA	
1.2 UPGRADE	15
ARTWORX	
BRIDGE 4.0	18
LINKWORD LANGUAGE	18
BANTAM	
AMIGADOS EXPRESS	18
DOS MANUALS	15
BAUDVILLE	
VIDEO VEGAS	21
B.E.S.T.	
BUSINESS MANAGEMENT	309
BROWN WAGH	
TV SHOW	60
TV TEXT	60
ZUMA FONTS	21
BYTE BY BYTE	
ANIMATE 3-D	100
SCULPT 3-D	67
CAPILÀND	
LOGIG WORKS	60
CENTRAL COAST	
DISK 2 DISK	30
DOS 2 DOS	33
PRECISELY	49
COSMI	
SUPER HUEY	24
CRYSTAL ROSE	
ANALYTIC ART	36
DIGITAL CREATIONS	
D BUDDY	48
GIZMOS 2.0	42
DIGITAL SOLUTION	
LPD WRITER	72
DISCOVERY	
AMNIX	30
ARKANOID	35
DX SERIES	30
GRABBIT	21
MARAUDER II	28
EAGLE TREE	
BUTCHER 2.0	24
EPYX	
CALIFORNIA GAMES	24
DESTROYER	24
SUB BATTLE	24
WORLD GAMES	24
ELECTRONIC ARTS	
ALTERNATE REALITY	28
ARCTIC FOX	28
ARTS PART II	21
BARDS TALE	35
BLACK CAULDRON	28
CHESSMASTER 2000	31
DELUXE MUSIC	69
DELUXE PAINT II	90
DELUXE PAINT UTILITY	21
DELUXE PRINT II	55
DELUXE VIDEO	90
DONALD DUCK	17
EARL WEAVER BASEBALL	35
FERRARI FORMULA 1	35
INSTANT MUSIC	35
INTELLITYPE	35
KINGS QUEST 1 2 3	35
LOUNGE LIZARDS	30
MAD LIBS	15
MARBLE MADNESS	35
MAVIS TYPING	31
NEW TEC COLORING BOOK	14
ONE ON ONE	11
QUIZAM	24
SEVEN CITIES OF GOLD	12
SKYFOX	14
SPACE QUEST II	35
STARFLEET I	35
THEXDER	25
WINNIE THE POOH	17
FELSINA	
A-TALK PLUS	60
FINALLY	
DR. XES	30
PHASAR	60
SENOR TUTOR	42
TALKER	42
FIREBIRD	
GUILD OF THEIVES	27
GOLDEN PATH	27
JEWEL OF DARKNESS	18
KNIGHT ORC	27
PAWN	27
SILCON DREAMS	18
STARGLIDER	27
FIRST BYTE	
FIRST LETTERS & WORDS	35
FIRST SHAPES	35
KID TALK	35
MATHTALK	
MATHTALK FRACTIONS	35
SMOOTHTALKER	35
SPELLER BEE	35
GAMESTAR	
CHAMPIONSHIP BASEBALL	24
CHAMPIONSHIP GOLF	24
GFL FOOTBALL	27
GOLD DISK	
FONT SET 1	21
GOLD SPELL	30
LASER SCRIPT	27
PAGESETTER	90
PROF PAGE SETTER	239
HAITEX	
HICALC	36
HASH	
ANIMATOR APPRENTICE	177
ANIMATOR APPRENTICE JR	48
IMPULSE	
PRISM	42
SILVER	102
INFINITY	
GALILEO	38
GRAND SLAM TENNIS	35
SHAKESPEARE	138
INOVARRONICS	
POWER WINDOWS	54
INTELLIGENT	
EMMETIC SKIMMER	27
INTERACTIVE	
CALLIGRAPHER	60
INFOCOM	
BALLYHOO	25
BUREAUCRACY	25
ENCHANTER	18
LEATHER GODDESSES	25
MOONMIST	25
SUSPENDED	25
THE WITNESS	22
TRINITY	25
WISHBRINGER	25
ZORK TRILOGY	42
ISM	
SURGION	30
JAGWARE	
ALIEN FIRES	24
JDK IMAGES	
PRO VIDEO CGI	120
FONT LIBRARY 1	60
FONT LIBRARY 2	60
LATTICE	
C-REGULAR	135
C-PROFESSIONAL	224
DBC III LIBRARY	90
LIGHTNING SOFTWARE	
BIG PICTURE	18
MANX	
AZTEC C-COMM	345
AZTEC C-DEVEL	207
AZTEC C-PROF	161
SOURCE LEVEL DEBUG	55
MERIDIEN	
ZING	48
ZING KEYS	41
METADIGM	
METASCOPE	57
METACOMCO	
ASSEMBLER	59
LISP	119
PASCAL	59
SHELL	42
TOOLKIT	30
MICRO ILLUSIONs	
BLACK JACK ACADEMY	26
CAD SYSTEM	299
DISCOVERY	24
FAIRY TAIL ADV	30
FIREPOWER	19
GALACTIC INVASION	19
LAND OF LEGENDS	30
PLANETARIUM	42
TURBO	15
MICRO MAGIC	
FORMS IN FLIGHT	48
MICROPROSE	
SILENT SERVICE	24
MICROSEARCH	
CITY DESK	90
HEAD COACH	35
MICROSMITHS	
FAST FONTS	CALL
TXED	CALL
MICROSYSTEMS	
ANALYZE 2.0	95
BBS-PC	59
FLIPSIDE	36
ON-LINE	42
ORGANIZE	59
SCRIBBLE	59
WORKS	120
MIMETICS	
SOUNDSAMPLER	60
MINDSCAPE	
BALANCE OF POWER	30
BRATACCUS	30
DEFENDER OF CROWN	30
DEJA VU	30
INDOOR SPORTS	30
INTO EAGLE'S NEST	24
KEYBOARD CADET	24
KING OF CHICAGO	30
PLUTOS	18
RACTOR	27
SDI	30
SHADOWGATE	30
SINBAD	30
THE HALLEY PROJECT	27
THE PERFECT SCORE	48
UNINVITED	30
MINDWARE	
PAGE FLIPPER	30
NEW HORIZONS	
FLOW	60
PROWRITE	75
NEW TEK	
DIGA-PAINT	40
DIGI-VIEW	129
NEW WAVE	
DYNAMIN DRUMS	48
ORGIN SYSTEMS	
AUTODUEL	30
ORGE	30
ULTIMA IV	36
OXXI	
BENCHMARK MOD 2	120
MAXIPLAN PLUS	120
PAR SOFTWARE	
EXPRESS PAINT	48
STELLAR CONFLICT	24
WORDPLEX	30
PDJ SOFTWEAR	
AiRT	39
POLYGLOT	
CROSSWORD CREATOR	30
DOMINOES	15
PROGRESSIVE	
CLI-MATE	24
INTROCAD	48
MICROLAWYER	36
PIXMATE	42
SUPERBASE	90
SUPERBASE PROF	CALL
VIZAWRITE	90
PSYGNOSIS	
BARBARIAN	24
TERROR PODS	24
READY SOFT	
THE 64 EMULATOR	CALL
SEDONA	
MONEY MENTOR	57
SIERRA	
KINGS QUEST I	34
KINGS QUEST II	34
KINGS QUEST III	34
SPACE QUEST	34
SIS	
C64 EMULATOR	CALL
SLIPPED DISK	
INVESTORS AD	60
SOFT TOUCH	
CUSTOM SCREEN	42
SOFTWARE TERNAL	
TELEGAMES	21
SOFTWARE VISION	
MICROFISH FILE	60
SOFTWOOD	
MIAMIGA FILE	30
MIAMIGA LEDGER	60
SPECTRUM	
GATO	30
SSI	
KAMPFGRUPPE	36
PHANTASIE	24
ROADWAR EUROPE	27
ROAD WAR 2000	24
SUBLOGIC	
FLIGHT SIMULA	30
JET	24
SCENERY DISK #7	15
SINERY DISK #11	15
SUNRISE IND	
PERFECT SOUND	54
STUDIO MAGIC	60
TDI	
MODULA II - COMM	179
MODULA II - DEVEL	90
MODULA II - REG	60
MATCH-IT	24
PROMISE SPELL	30
REASON	236
SYNTHIA	60
TIGRESS	
DISKWIK	30
TRUE BASIC I	
TRUE BASIC	60
UNICORN	
AESOPS FABLES	30
DECIMAL DUNGEON	30
FRACTION ACTION	30
KINDERAMA	30
READ & RHYME	30
READ-A-RAMA	30
THE WORD MASTER	30
UNISON	
ART GALLERY I, II	21
PRINTMASTER PLUS	30
VIP PROFESSIONAL	90

1-800-423-7347 **STARFLITE** 1-800-423-7347

MC VISA WELCOME — TELEMARKETING — P.O. BOX 685, NITRO. W.VA. 25143

Circle 116 on Reader Service card.

from p. 54

```
boundedX := newx;
END;
IF (newy < 0) THEN
boundedY := 0;
ELSIF ((newy + vheight-1) > Ymax) THEN
boundedY := Ymax - vheight;
ELSE
boundedY := newy;
END;
(* Calc. dx, dy, and scroll the image *)
dx := boundedX - CurX;
dy := boundedY - CurY;
CurX := boundedX;
CurY := boundedY;
ScrollLayer (awin^.WLayer^, dx, dy);
(* Tell Intuition to rebuild screen    *)
MakeScreen (awin^.WScreen^);
RethinkDisplay;
END TryMove;
(*--------------*)
(* Main Program *)
(*--------------*)
VAR
drawwin : WindowPtr;
                  (* Window from DrawIt *)
shiftcount : INTEGER; (* Shift key count *)
message : IntuiMessagePtr;
msgclass : IDCMPFlagsSet;
msgcode : CARDINAL;
sigset : SignalSet;
filearg : ADDRESS;(* For argv *)
BEGIN (* main program *)
IF (argc < 2) THEN
(* Run from Workbench, or from CLI w/out args *)
filearg := NIL;
ELSE
filearg := argv^[1];
END;
shiftcount := 0;
DrawIt (filearg, drawwin, Xmax, Ymax);
(* Init position trackers. *)
CurX := 0;
CurY := 0;
LOOP(* Do this forever, or until user *)
(* gets bored.*)
sigset := Wait (SignalSet {CARDINAL
 (drawwin^.UserPort^.mpSigBit)});
message := GetMsg(drawwin^.UserPort^);
WHILE (message # NIL) DO
     msgclass := message^.Class;
    msgcode := message^.Code;
    ReplyMsg(message);
     IF (Closewindow IN msgclass) THEN
DrawCleanup;
HALT;
    ELSIF (RawKey IN msgclass) THEN
CASE msgcode OF
    CursorUp:
IF (shiftcount > 0) THEN
TryMove (drawwin,
CurX, CurY-10);
ELSE
TryMove (drawwin,
CurX, CurY-1);
END;
|
    CursorDown:
IF (shiftcount > 0) THEN
TryMove (drawwin,
CurX, CurY+10);
ELSE
TryMove (drawwin,
CurX, CurY+1);
END;
|
    CursorRight:
IF (shiftcount > 0) THEN
TryMove (drawwin,
CurX+10, CurY);
```

```
ELSE
TryMove (drawwin,
CurX+1, CurY);
END;
|
    CursorLeft:
IF (shiftcount > 0) THEN
TryMove (drawwin,
CurX-10, CurY);
ELSE
TryMove (drawwin,
CurX-1, CurY);
END;
|
    HelpKey:
TryMove (drawwin, 0, 0);
|
    RtShiftOn,
    LfShiftOn:
INC(shiftcount);
|
    RtShiftOff,
    LfShiftOff:
DEC(shiftcount);
|
    ELSE
(* Ignore other Keys *) ;
END; (* Switch *)
    END; (* RawKey Case *)
message := GetMsg(drawwin^.UserPort^);
END; (* While messages available *)
END; (* Event LOOP *)
END BigPict.
IMPLEMENTATION MODULE DrawItIFF;
(*----------------------------------------*)
(* DrawItIFF - A Modula-2 Demo which loads a  *)
(* larger-than-screen-size IFF image.         *)
(*       Requires Benchmark IFF Library      *)
(*  David T. McClellan  March/April 1988.  *)
(*  Written in Benchmark Modula-2. *)
(*----------------------------------------*)
FROM SYSTEM IMPORT
ADR, TSIZE, BYTE, ADDRESS;
FROM InOut IMPORT
WriteString, WriteLn;
FROM Intuition IMPORT
ScreenPtr, ScreenFlags, ScreenFlagsSet,
NewScreen, NewScreenPtr, CustomScreen,
Window, WindowPtr, NewWindow, NewWindowPtr,
WindowFlags, WindowFlagsSet, SuperBitMap,
IDCMPFlags, IDCMPFlagsSet,
IntuiMessage, IntuiMessagePtr,
OpenScreen, CloseScreen, RethinkDisplay,
     MakeScreen, OpenWindow, CloseWindow,
     RefreshWindowFrame,OpenWorkBench,
     ViewAddress, ViewPortAddress,
Image, DrawImage;
FROM Memory IMPORT
AllocMem, FreeMem, MemPublic, MemChip,
     MemClear,MemReqSet;
FROM Ports IMPORT
GetMsg, ReplyMsg;
FROM Tasks IMPORT
Wait, SignalSet;
FROM AmigaDos IMPORT
ModeOldFile, FileHandle, Open, Close;
FROM System IMPORT
argc, argv;
FROM IFF IMPORT
IFFP, IFFDone;
FROM ILBM IMPORT
BitMapHeader;
FROM ReadPict IMPORT
ILBMFrame, ReadPicture;
FROM RemAlloc IMPORT
ChipAlloc, RemFree;
FROM Rasters IMPORT
RastPort, RastPortPtr,RasInfo, RasInfoPtr;
FROM Graphics IMPORT
BitMap, BitMapPtr;  ►
```

```
FROM Views IMPORT
ViewModes, ViewModesSet, View, ViewPtr,
     LoadView,ViewPort, ViewPortPtr, MakeVPort,
     MrgCop, LoadRGB4;
CONST
(* Screen, scene constants *)
SCRWIDTH = 320;(* LORES *)
SCRHEIGHT = 200;(* Noninterlaced *)
TYPE
(*--------------------+
| Close-up-shop Bits  |
+--------------------*)
CloseMaskBits = (CL_SCREEN,
                        (* Close the screen *)
       CL_IFF,
                 (* Deallocate IFF Memory *)
       CL_WINDOW);
                            (* Close window *)
CloseMaskSet = SET OF CloseMaskBits;
VAR
closemask : CloseMaskSet;
newscr : NewScreen;
newwin : NewWindow;
win : WindowPtr; (* Window from DrawIt *)
scr : ScreenPtr; (* Screen from DrawIt *)
rp : RastPortPtr;
bitm : BitMapPtr;(* ILBM's bitmap *)
winvport : ViewPortPtr; (* win Viewport *)
(* DrawCleanUp - Cleanup code for the DrawIt  *)
PROCEDURE DrawCleanup;
VAR
j : INTEGER;
wscr : ScreenPtr;
BEGIN
IF (CL_WINDOW IN closemask) THEN
CloseWindow (win^);
END;
IF (CL_SCREEN IN closemask) THEN
CloseScreen (scr^);
END;
wscr := OpenWorkBench ();
IF (CL_IFF IN closemask) THEN
RemFree (bitm^.Planes[0]);
FreeMem (bitm, TSIZE(BitMap));
END;
END DrawCleanup;
(*-----------------------------------------*)
(* DrawIt - load and draw the image which    *)
(* BigPict will let the user scroll around.  *)
(*-----------------------------------------*)
PROCEDURE DrawIt(filename : ADDRESS;
 VAR awin : WindowPtr;
 VAR xmax, ymax: INTEGER);
VAR
i,j : INTEGER;
xoff, yoff: INTEGER;
rastbytes : LONGCARD;
                 (* Bytes in rasters *)
iffid : FileHandle;(* IFF file *)
iffret : IFFP;
            (* Return value from ReadPicture *)
frame : ILBMFrame;
            (* Filled by ReadPicture *)
iffimage : Image; (* For DrawImage's use *)
BEGIN
IF (filename = NIL) THEN
          WriteString('Need name of IFF file!');
WriteLn;
WriteString('1> BigPict <filename>');
WriteLn;
HALT;
END;
iffid := Open (filename, ModeOldFile);
IF (iffid = NIL) THEN
WriteString('Cannot open file');
WriteLn;
HALT;
END;
closemask := CloseMaskSet {};
```

►

WE SELL THE BEST - FOR LESS!

✓ Denotes new products

SOFTWARE

ABACUS
- ✓ Assempro $60
- ✓ Becker Text $90
- ✓ Books Call
- Data Retrieve $48
- Text Pro $48

ABSOFT
- AC/Basic $117
- AC/Fortran $180

ACCESS SOFTWARE
- Leader Board $24
- Tournament Disk $12

ACCOLADE
- Mean 18 $27
- Famous Courses Vol. 2 $12
- ✓ Fight Night Call
- ✓ Graphic Studio $36
- Hard Ball $27
- Test Drive $27

ACTIONWARE
- ✓ Capone $24
- ✓ Phaser Gun Call
- ✓ P.O.W. Call
- ✓ Creature Call

ACTIVISION
- Game-★ Basketball $27
- Game-★ Baseball $27
- Game-★ Golf $27
- Game-★ Football $27
- GB Air Rally $24
- Hacker II Call
- Infocom Titles!! 40% Off
- Music Studio $30
- Portal $30
- Shanghai $24

ADDISON-WESLEY
- Hardware Manual $20
- Intuition Manual $20
- Rom Kernal Manual $24
- Rom Manual Exec $16

AEGIS
- Animator/Images $84
- Art Disk $24
- Arazok's Tomb $30
- ✓ Audiomaster $36
- Diga $48
- Draw $75
- Draw Plus $149
- Images $24
- Impact $54
- ✓ Port of Call $24
- Soni $48
- Videoscape 3D $120
- ✓ Video Titler Call

AMIGA
- Assembler $60
- Amiga C $90
- ✓ 1.2 Enhancer 10.
- Graphic Craft $20
- Lisp $120
- MindWalker $30
- Pascal $120
- Textcraft Plus $54

ANCO
- ✓ Harrier Mission $15
- ✓ Formula 1 Racing $15
- ✓ HR35 $15
- ✓ Karting Grand Prix $15
- ✓ Las Vagas $15
- ✓ Karate Kid $15

APPLIED VISIONS
- ✓ Sargon III $30

ARTWORX
- ✓ Bridge 5.0 $21
- Linkword Languages $18
- Strip Poker $24
- Strp. Pokr Data Disk 5 $12

ASDG
- FACC II $21
- ✓ Cube Master $21

ASO
- Brush Works (1 or 2) $18
- EFX $180

BANTAM
- AmigaDOS Express $20
- DOS Manuals $22

BAUDVILLE
- ✓ Award Maker $30
- Video Vegas $24

B.E.S.T.
- Business Mgmt Call
- ✓ General Ledger Call

BROWN WAGH
- ✓ Express Paint (NEWV) $60
- ✓ Publisher Plus $60
- ✓ Softwood File IIsg Call
- ✓ TV Show $60
- TV Text $60
- ✓ Word Plex $24
- ✓ Write & File $60
- Zuma Fonts (Each) $21

BYTE BY BYTE
- Animate 3-D $95
- InfoMinder $60
- Sculpt 3-D $65

CAPILANO
- Logic Works $60

CENTRAL COAST
- DISK to DISK $30
- DOS 2 DOS $33
- Precisely $60
- ✓ Quarterback $42

CINEMAWARE
- ✓ King of Chicago $30
- ✓ S.D.I. $30
- ✓ Sinbad $30
- ✓ 3 Stooges $30
- ✓ Rocket Ranger $30

COMMAND SIMULATIONS
- ✓ Blitzkrieg $30

DIGITAL CREATIONS
- ✓ D' Buddy $48
- Digital Link $42
- Gizmos 2.0 $42

DIGITAL SOLUTIONS
- LPD Writer $42

DIGITEK
- ✓ Amegas
- ✓ Hollywood Poker
- ✓ Vampires Empire

DISCOVERY
- ✓ Amnix Call
- Arkanoid $30
- ✓ DX Series Call
- Grabbit $18
- Marauder II $24
- ✓ Zoom

DISK CO.
- ✓ Critics Choice $150
- Kind Words $60

DR. T MUSIC SOFTWARE
- ✓ K.C.S. $150

EAGLE TREE
- Butcher 2.0 $22

EIDERSOFT
- ✓ Amiga Karate $21

ELECTRONIC ARTS

Buy 2 get 1 Free/Call
- ✓ AAA RGH $23
- Adv. Constr. Kit $14
- ✓ Alien Fires
- ✓ Alternate Reality (city) $26
- Artic $26
- ✓ Awesome Arcade Pk. $32
- Bard's Tale $32
- ✓ Battle Droidz $23
- Black Cauldron $26
- ChessMaster 2000 $29
- Deluxe Music $62
- Deluxe Paint II $80
- Deluxe Video 1.2 $80
- ✓ Deluxe Photo Lab $62
- ✓ Deluxe Productions $122
- Deluxe Video 1.2 $80
- ✓ Deluxe Write $62
- ✓ Empire $32
- ✓ Ferrari Formula 1 $32
- Financial Cookbk $14
- ✓ Hunt For Red Oct $32
- Instant Music $32
- King's Quest $32
- ✓ Life and Death $29
- ✓ Mad Libs $12
- Marble Madness $32
- ✓ Mavis Beacon $29
- ✓ Monopoly
- ✓ Thexder $32
- One on One $14
- ✓ Pub Games $23
- ✓ Return To Atlantis $32
- ✓ Road Wars $23
- ✓ Rockford $23
- Skyfox $14
- Skyfox II $26
- Starfleet I $35
- Ultima III $24
- Space Quest $32
- Lounge Lizards $32
- Earl Weaver $32

EPYX
- California Games $24
- Destroyer $24
- ✓ Dive Bomber $24
- Rogue $24
- ✓ Street Cat $15
- ✓ Street Sport Basketball $24
- Sub Battle $27
- Summer Games $24
- Temple of Apshai $24
- Winter Games $24
- World Games $24
- ✓ 4x4 Road Racing $24

FIREBIRD
- Guild of Thieves $27
- ✓ Jinxter $24
- Pawn
- Knight of Orc $24

FINALLY TECHNOLOGIES
- ✓ Animotion $60
- Talker $42
- Phasar $60
- Senor Tutor $30

FIRST BYTE
- First Letters & Words $30
- First Shapes $30
- Kid Talk $30
- Math Talk $30
- Math Talk Fractions $30
- Smoothtalker $30
- Speller Bee $30

FREE SPIRIT
- ✓ Ultimate Dos Utilities Call

FUTUREWORKS
- LexCheck $26

GIMPEL
- Lint $80

GOLD DISK
- ✓ Color Separator Call
- ✓ Comic Setter $60
- Font Set 1 $25
- Gold Spell $27
- Laser Script $27
- Page Setter $90
- ✓ Pg. Setter Prof $240

GRAPHIC EXPRESSIONS
- Girls $12

HAITEX
- ✓ A-DRV $48
- HiCalc $36

HASH
- Animator Apprentice $180
- ✓ Animator Apprentice Jr. Call
- ✓ Animator Flipper $24
- ✓ Share Libreries Call

HYPERTEC
- GOMF $24

IMPULSE
- ✓ Diamond Call
- Prism $42
- Silver $108

INFINITY
- ✓ Galileo II $42
- ✓ Grand Slam Tennis $30
- Hot Licks $24
- Shakespeare $135

INFOCOM
- ✓ Beyond Zork $30
- ✓ Sherlock Holmes $24

INNOVISION
- ✓ Video Effects 3D Call

INOVATRONICS
- Power Windows Call

INTELLIGENT MEMORY
- Galaxy Fight $21
- Garrison $35
- ✓ Garrison II $35
- Mousetrap $14
- ✓ Turbo Print Call

INTERACTIVE SOFTWORKS
- Calligrapher $60
- ✓ Calligrphr W/Fnt Mvr $78
- ✓ Lion Fonts $36
- Newsletter Fonts $18
- Studio Fonts $21

ISM
- Surgeon $30

JAGWARE
- Alien Fires $24

JDK IMAGES
- Pro Video CGI $120
- ✓ Pro Video Plus Call
- Font Library 1 $65
- Font Library 2 $65

JHM
- Talking Color Book $18

KARA
- ✓ Kara Fonts $48

KFS
- ✓ Accountant $180

LATTICE
- C - Regular $147
- C - Professional $260
- dbD III Library $100

LION'S AMIGA ART STUDIO
- Font Sets 1 & 2 $25
- Newsletter Fonts $25

MANX
- Aztec C - Comm $310
- Aztec C - Devel $195
- Aztec C - Prof $130
- Source Level Debug r $49

MASTERTRONIC
- ✓ Fued $15
- ✓ Ninja Mission $15
- ✓ Space Ranger $15

MERIDIAN SOFTWARE
- ✓ Demonstrator $24
- Zing $48
- Zing Keys $30
- ✓ Zing Spell $30

MERRILL WARD
- ✓ Celebrity Cookbook $21

METACOMCO
- Assembler $60
- Lisp 1.3 $120
- Pascal $60
- Shell $42
- Toolkit $30

METADIGM
- MetaScope Call
- ✓ MetaScope Debugger $59

MICRO DEAL
- Air Ball $24
- Cashman $18
- Gold Runner $24
- Karate Kid II $24
- ✓ Slaygon
- Time Bandits $24

MICRO ILLUSIONS
- Black Jack Academy $24
- Dynamic Word $120
- Disc.-Math/Spell (each) $24
- Dynamic CAD $300
- ✓ Ebon Star $24
- Faery Tale Adv $30
- Fire Power $15
- Galactic Invasion $15
- Land of Legends $30
- ✓ Music X $180
- ✓ Photon Paint $60
- ✓ Photon Video Call
- ✓ Planetarium Call
- ✓ Romantic Encounter Call
- ✓ Turbo $15

MICRO MAGIC
- Forms in Flight II $72

MICROPROSE
- Silent Service $24

MICROSEARCH
- City Desk 2.0 $120
- Desktop Artist #1 Call
- Head Coach $30

MICROSMITHS
- TxEd Plus $48

MICROSYSTEMS SW
- Analyze 2.0 $60
- BBS-PC $60
- ✓ Excellence! $180
- Flipside $30
- On-line $42
- Organize $60
- Scribble $60
- The Works $120

MIMETICS
- ✓ Capture $120
- ✓ 3 Demon $65
- ✓ Framebuffer $420
- Midi Interface $43
- Sound Sampler $80
- Pro Midi Studio $125

MINDSCAPE
- Balance of Power $30
- ✓ Block Buster $30
- Bratacus $30
- Deja Vu $30
- ✓ Gauntlet $30
- Halley Project $27
- ✓ Harrier Combat $30
- ✓ Ice Hockey $30
- ✓ Indoor Sports $30
- ✓ Into Eagle's Nest $30
- King of Chicago $30
- ✓ Misc Socker
- Plutos $18
- ✓ Q Ball $18
- Racter $27
- SAR Preparation $48
- Shadowgate $30
- Sinbad $30
- ✓ Superstar Ice Hockey $30
- Uninvited $30

MINDWARE
- Descartes $18
- Holmes Call
- Page Flipper $30
- ✓ Pg. Flipper Plus F/X Call

NEW HORIZONS
- ✓ Deluxe Help/Calligr $27
- Flow $60
- ✓ Pro Write 2.0 $75

NEWTEK
- A500 Adapter $20
- ✓ Digi-Droid $62
- Digi-Paint 2.0 $36
- DigiView 2.0 $130

NEW WAVE
- Dynamic Drums $48
- ✓ Dynamic Studio Call

NORTHEAST SOFTWARE GROUP
- Order $30
- Publish $120

OMNITREND
- ✓ Breach $24
- ✓ Paledin
- ✓ Scenerio Disk $15

OPCODE SYSTEMS
- ✓ Music Mouse

ORIGIN SYSTEMS
- ✓ AutoDuel $30
- Ogre Call
- Moebius $36
- Ultima III $24
- Ultima IV $36

OXXI
- ✓ Benchmark Mod-2
- ✓ Libraries $60
- Maxiplan 500 $90
- Maxiplan Plus $120
- ✓ Nimbos $90

PECAN SOFTWARE
- UCSD Pascal $60

PDJ SOFTWARE
- ✓ AiRT Call

POLYGLOT SOFTWARE
- Crossword Creator $20
- Dominoes $15

PROGRESSIVE
- CLI-Mate $24
- ✓ Dr. Term Prof $60
- ✓ IntroCad $48
- Logistix $80
- MicroLawyer $36
- ✓ PrixMate $42
- Superbase $80
- ✓ Superbase Prof $180
- Vizawrite $80

PSYGNOSIS
- Barbarian $24
- ✓ Deep Space
- ✓ Obliterator $24
- Terror Pods $24

RAINBIRD
- ✓ Carrier Command Call

READY SOFT
- The 64 Emulator-2 $60

RIGHT ANSWERS GROUP
- ✓ Director $42

SEDONA
- Money Mentor $60

SOFT GANG
- ✓ Final Trip $15
- ✓ Space Fight $15
- ✓ Vader $15

SOFTLOGIC
- ✓ Galileo 2.0 $42
- ✓ Publ Partner Prof $120

SOFT TOUCH
- Custom Screens $42
- Paymaster Plus $90

SOFTWARE ADVANTAGE
- ✓ Investors Advantage $60

SOFTWARE VISIONS
- MicroFiche Filer $60

SSI
- Kampfgruppe $36
- Phantasie $24
- Roadwar Europa $24
- Road War 2000 $24
- Wrath of Nicodemus $24

SUBLOGIC
- Flight Simulator $32
- Jet $32
- Scenery Disks (All) $17
- European Scenery $17

SUNRIZE INDUSTRIES
- ✓ Adventure WkShop $36
- ✓ Elctr Color Splitter Call
- Perfect Vision $160
- Studio Magic $60

TAURUS
- Acqusition $180
- ✓ X-CAD Designer $360

TDI

All Products Available
- Modula II - Comm. $180
- Modula II - Devel. $90
- Modula II - Reg. $60

THE OTHER GUYS
- Match-It Call
- Omega File Call
- Promise Spell Checker $36
- Reason Call
- Synthia $60

THREE SIXTY INC.
- Dark Castle $27

TITUS
- ✓ Krazy Cars $40

TOP DOWN
- Footman $18
- ✓ Space Night
- Vyper $18

TRUE BASIC
- True Basic $60
- 9 Libraries (each) $30
- Runtime $90

UNICORN
- Aesop's Fables $30
- All About America $36
- Decimal Dungeon $30
- Fraction Action $30
- ✓ Ghostly Grammer $30
- Kinderama $30
- ✓ Land of the Unicorn $36
- Read & Rhyme $30
- Read-A-Rama $30
- The Word Master $30

UNISON WORLD
- Art Gallery 1,2 $18
- Printmaster Plus $30

VIP TECHNOLOGY
- Professional $90

WORD PERFECT INC.
- ✓ Library Call
- Word Perfect $200

DISKS GENERIC	FUJI - MAXELL SONY - VERBATIM	POLAROID DATA RESCUE
5¼ DS/DD .25¢ 200 Lot 3½ DS/DD 1.30 30 Lot	3½ DS/DD 1.80 30 Lot	3½ DS/DD 1.50 30 Lot

Orders Only:

800-433-7756

MICROCOMPUTER SERVICES

In Michigan:

313-427-7713

Customer Service: **313-427-0267**

FAX: **313-427-7766**

Hours: Mon-Fri 10 a.m. - 8 p.m.
Saturday 10 a.m. - 6 p.m.

Circle 44 on Reader Service card.

Send Mail Orders To: **M.C.S.** 12864 Farmington Rd., Livonia, MI 48150

School P.O.'s Accepted - Call For Terms

No Surcharge for MC/VISA/DISCOVER   Sorry no walk in traffic

All returns must have RA#. Merchandise found defective will be repaired or replaced. We do not offer refunds for defective products or for products that do not perform satisfactorily. We make no guarantees for product performance. Any money back guarantee must be handled directly with the manufacturer. Call for shipping & handling info. Prices subject to change without notice. Shipping & Handling are not refundable.

12864 FARMINGTON ROAD, LIVONIA, MI 48150

We cannot guarantee compatibility.

DEALER INQUIRIES INVITED

```
(* Allocate BitMaps first *)
bitm := AllocMem (TSIZE(BitMap),
                           MemReqSet {MemChip});
IF (bitm = NIL) THEN
WriteString('Cant allocate bitmap descriptor');
WriteLn;
DrawCleanup;
HALT;
END;
(* Load Image *)
iffret := ReadPicture (iffid, bitm^,
                              frame, ChipAlloc);
Close (iffid);
IF (iffret # IFFDone) THEN
WriteString ('Error reading file');
WriteLn;
FreeMem (bitm, TSIZE(BitMap));
HALT;
END;
closemask := closemask + CloseMaskSet {CL_IFF};
WITH newscr DO
LeftEdge := 0;TopEdge :=0;
Width := SCRWIDTH;
          Height := SCRHEIGHT;
Depth := INTEGER(frame.bmHdr.nPlanes);
DetailPen := BYTE(-1);
BlockPen := BYTE(-1);
ViewModes := ViewModesSet {};
Type :=CustomScreen;
          CustomBitMap := NIL;
Font := NIL;Gadgets := NIL;
DefaultTitle := ADR('DrawItIFF Screen');
END;
scr := OpenScreen (newscr);
IF (scr = NIL) THEN
DrawCleanup;
WriteString('Could not open screen');
WriteLn;
HALT;
END;
     closemask := closemask +
                    CloseMaskSet {CL_SCREEN};
LoadRGB4 (scr^.ViewPort, ADR(frame.colorMap),
  INTEGER(frame.nColorRegs));
WITH newwin DO
LeftEdge := 0;       TopEdge := 0;
Width := SCRWIDTH;
Height := SCRHEIGHT;
DetailPen := BYTE(1);
BlockPen := BYTE(0);
IDCMPFlags := IDCMPFlagsSet
                     {Closewindow, RawKey};
Flags := WindowFlagsSet {WindowClose,
Borderless, GimmeZeroZero,
Activate} + SuperBitMap;
FirstGadget := NIL;
CheckMark := NIL;
Title := ADR('DrawItIFF Window');
Screen := scr;       BitMap := bitm;
MinHeight := SCRHEIGHT;
MinWidth := SCRWIDTH;
MaxHeight := SCRHEIGHT;
MaxWidth := SCRWIDTH;
Type := CustomScreen;
END; (* WITH *)
win := OpenWindow(newwin);
IF (win = NIL) THEN
WriteString('could not open the window');
WriteLn;
DrawCleanup;
HALT;
END;
closemask := closemask +
                  CloseMaskSet {CL_WINDOW};
awin := win;
xmax := frame.bmHdr.w;
ymax := frame.bmHdr.h;
END DrawIt;
END DrawItIFF. ■
```

The Pull-Down Menu

WE SHIP AROUND THE WORLD

OMNI INTERNATIONAL TRADING

The AMIGA Specialists

AMIGA Software
AMIGA Peripherals
AMIGA Computers

Known internationally for exceptional service.
Knowledgeable, multi-lingual staff.
U.S. overseas personnel!
We specialize in APO & FPO shipping!
Ask for our Overseas Military Special Pricing!
Fast delivery, charged when shipped
AX, Discover, VISA, MC, M/O, Certified check
#1 Authorized AMIGA Dealer in the Pacific NW!

3826 Woodland Park Ave. N., Seattle, WA 98103 206-547-OMNI 206-547-6664 Fax 206-547-6012

AMIGA DUST COVERS

*Satisfaction Guaranteed *Custom Made *Heavy 32oz Vinyl
*Colors TAN & BROWN *Quantity Discounts Available

(A) 500/1000/2000 MONITORS	$19.00	(F) EXT. 3.5 DRIVE	$ 8.00
(B) 1000/2000 CPU w/DRIVE	13.00	(G) EXT. 5.25 DRIVE	8.00
(C) 1000 KEYBOARD	7.00	(H) MOUSE COVER	4.00
(D) 500 KEYBOARD w/DRIVE	14.00	(I) 10″ PRINTER	13.00
(E) 2000 KEYBOARD	8.00	(J) 15″ PRINTER	16.00

COMBINATIONS: (A) (B) $28.00; (A) (D) (H) $31.00; (A) (B) (E) (H) $34.00 (A) (B) (C) (F) (H) $39.00
Order By Stating Make, Model & Color (TAN or BROWN) with Check or M.O. Plus $2.00 per Item ($5.00 Max) SHP. & HDL; CA. Res. add 6% Tax. COD's $3.00.
CROWN CUSTOM COVERS, 24621 Paige Circle, DEPT. A-2
Laguna Hills, CA. 92653 (714) 472-6362

DIGITAL WIZARDS PRESENTS...

MUSIC VISIONS©

Samples and analyzes music, using the Perfect Sound or FutureSound digitizers, producing a light show in real time.
$29.95 + 3.00 S/H Calif. residence add tax
9307 Carlton Hills Blvd. Santee, CA 92071 (619)449-1281

Laser Light Shows on the Amiga

The lowest-cost, highest-performance laser show system for any computer anywhere. Produce professional laser graphics for clubs, bands, planetariums, theaters, etc. Requires 1 meg Amiga and laser projector. Software from $295 to $995. Laser projectors from $1500. **New! Convert IFF pictures to laser graphics.**

Send SASE for free information to: Patrick Murphy, Pangolin Laser Software, 1016 N. Daniel St. #2, Arlington, VA 22201 or call (703) 527-4880.

Demo disk—$15 Demo VHS video—$25

AUG
AMIGA USER'S GROUP of SJ

Join the largest user's group dedicated to the AMIGA. Receive our official newsletter. Evaluations on software and hardware, advanced updatings, technical information, problem-solving, program exchange (over 50 disks in our PD library), Buying discount service, etc.

Send $18.00 US for Membership to:
AUG
Box 3761- Attn: Jay Forman-AW1
Cherry Hill, NJ 08034
(609) 667-2526 Add $1.00

VISA MasterCard



Business Software

Payroll
Accts Receivable
Check Ledger

Inventory
Accts Payable
General Ledger

call or write today for a FREE CATALOG!
(619) 436-3512



COMPUTERWARE®
Box 668-A Encinitas, CA 92024

INTRODUCING . . . PROJECT "D"

- An easy to use, friendly & intuitive user interface.
- A powerful and fast backup tool that lets you make backups of your copy-protected Amiga software.
- A unique backup tool for duplicating other disk formats including MS-DOS/PC-DOS and Atari ST.
- This product is not copy-protected in any way.

NOW SHIPPING
$49.95 ea
Includes shipping and handling!
Arizona residents add 6.5% sales tax
Dealer Inquiries Invited
Amiga is a trademark of Commodore-Amiga Inc.

TO ORDER
Send check or money order to:
Fuller Computer Systems Inc.
P.O. Box 9222
Mesa, Arizona 85204-0430
OR CALL **(602) 835-5018**

35mm COLOR SLIDES

from your IFF or HAM files

- Brilliant Color
- No Curvature Distortion

as low as $1/slide
Call or Write for order form, price list & sample

HAMMOND PHOTOGRAPHIC SERVICES
11280 Washington Place
Culver City, Ca. 90230
(213) 390-3010

3-tuple

3D Animation and Rendering Power

X-Specs 3D
Vectorization of IFF imports
Surface Mapping
Free-handed Paths
Parametric Formulated Paths
Object-Polyhedron-Face Breakdown
Hierarchical Object Linkage
Fractal Landscape

True & False Ray Tracing
Real-Time Mouse Control
IFF and ANIM format
All Resolutions including & Overscan!
Multiple Moving Cameras & Views
Multiple Moving Lights
Fish Eye Views!
MORE!

Mitchell Ware Systems
421 Spruce Manor, Bellmawr, NJ 08031

1-800-942-WARE
In NJ:
1-609-933-3802

Join the *rage* with *RAMpage*!

Sample prices

City Desk:	$89	Galileo:	$44
BBS-PC:	$61	S.D.I. :	$31

Call 1-800-535-5757 (In Arizona: 247-1490)

Amiga software, lowest prices !!

RAMpage, Inc. • 3341 W. Peoria
Suite 204 • Phoenix, AZ 85029

APL.68000

$99

A HIGHLY OPTIMIZED ASSEMBLER BASED APL INTERPRETER FOR FAST AND POWERFUL PROGRAMS. FEATURES A COMPLETE INTERFACE TO THE AMIGA ENVIRONMENT WITH PULL-DOWN MENUS, REQUESTER AND ALERT BOXES, SPEECH, SOUND AND GRAPHIC FACILITIES.

SPENCER ORGANIZATION, INC.
Westwood, N.J. 07675
P.O. Box 248
(201) 666-6011

Order Direct for $99 + 7 shipping, $10 Canada.
VISA/MC/AMEX + 4% NJ res. + 6% sales tax.

TRY BEFORE YOU BUY!

Yes We Accept: MasterCard VISA DISCOVER

Best selling games, utilities, and classics plus new releases!

- 100's of titles
- Low prices
- Same day shipping
- Free brochure

RENT-A-DISC
Frederick Bldg. #220
Huntington, WV 25701
(304) 529-3232

AmigaWorld is a publication of IDG Communications, the world's largest publisher of computer-related information. IDG Communications publishes over 90 computer publications in 33 countries. Fourteen million people read one or more IDG Communications publications each month. IDG Communications publications contribute to the IDG News Service offering the latest on domestic and international computer news. IDG Communications publications include: ARGENTINA'S *Computerworld Argentina*; ASIA'S *Communications World, Computerworld Hong Kong, Computerworld Malaysia, Computerworld Singapore, Computerworld Southeast Asia, PC Review;* AUSTRALIA'S *Computerworld Australia, Communications World, Australian PC World, Australian Macworld*; AUSTRIA'S *Computerwelt Oesterreich*; BRAZIL'S *DataNews, PC Mundo, Micro Mundo*; CANADA'S *Computer Data;* CHILE'S *Informatica, Computacion Personal*; DENMARK'S *Computerworld Danmark, PC World Danmark*; FINLAND'S *Mikro, Tietoviikko*; FRANCE'S *Le Monde Informatique, Distributique, InfoPC, Telecoms International;* GREECE'S *Micro and Computer Age*; HUNGARY'S *Computerworld SZT, PC Mikrovilage*; INDIA'S *Dataquest*; ISRAEL'S *People & Computers Weekly, People & Computers Bi-Weekly*; ITALY'S *Computerworld Italia*; JAPAN'S *Computerworld Japan*; MEXICO'S *Computerworld Mexico*; THE NETHERLANDS' *Computerworld Netherlands, PC World Benelux*; NEW ZEALAND'S *Computerworld New Zealand*; NORWAY'S *Computerworld Norge, PC World Norge*; PEOPLE'S REPUBLIC OF CHINA'S *China Computerworld, China Computerworld Monthly*; SAUDI ARABIA'S *Arabian Computer News*; SOUTH KOREA'S *Computerworld Korea, PC World Korea*; SPAIN'S *CIMWORLD, Computerworld Espana, Commodore World, PC World Espana, Comunicaciones World, Informatica Industrial*; SWEDEN'S *Computer Sweden, Mikrodatorn, Svenska PC World*; SWITZERLAND'S *Computerworld Schweiz*; UNITED KINGDOM'S *Computer News, DEC Today, ICL Today, LOTUS, PC Business World*; UNITED STATES' *AmigaWorld, CD-ROM Review, CIO, Computer Currents, Computerworld, Computers in Science, Digital News, Federal Computer Week, 80 Micro, FOCUS Publications, inCider, InfoWorld, Macintosh Today, MacWorld, Computer + Software News, (Micro Marketworld/Lebhar-Friedman), Network World, PC World, Portable Computer Review, Publish!, PC Resource, RUN, Windows*; VENEZUELA'S *Computerworld Venezuela*; WEST GERMANY'S *Computerwoche, Information Management, PC Welt, Run, PC Woche, RUN.*

Manuscripts: Contributions in the form of manuscripts with drawings and/or photographs are welcome and will be considered for possible publication. *AmigaWorld* assumes no responsibility for loss or damage to any material. Please enclose a self-addressed, stamped envelope with each submission. Payment for the use of any unsolicited material will be made upon publication. All contributions and editorial correspondence (typed and double-spaced, please) should be directed to *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458; telephone: 603-924-9471. **Advertising Inquiries** should be directed to Advertising Offices, IDG Communications/Peterborough, Inc., 80 Elm St., Peterborough, NH 03458; telephone: 800-441-4403. **Subscription problems or address changes:** Call 1-800-525-0643 (in CO, 1-303-447-9330) or write to *AmigaWorld*, Subscription Dept., PO Box 58804, Boulder, CO 80322-8804. **Problems with advertisers:** Send a description of the problem and your current address to: *AmigaWorld,* 80 Elm St., Peterborough, NH 03458, ATTN.: Lisa LaFleur, Customer Service Representative.

List of Advertisers

* This advertiser prefers to be contacted directly

This index is provided as an additional service. The publisher does not assume liability for errors or omissions.

FYI

As a service to its readers, *AmigaWorld* will periodically publish the names of companies who are having difficulties meeting their customer obligations or who have gone out of business. Readers are advised to contact *AmigaWorld* before dealing with these companies: **Computer Best, FutureSoft Applications**. If you have any questions or concerns about advertisers in *AmigaWorld*, please contact: **Lisa LaFleur, Customer Service Representative, *AmigaWorld* Magazine, 80 Elm Street, Peterborough, NH 03458.** Through our customer service representative, *AmigaWorld* assists readers with problems they may have with advertisers. However, *AmigaWorld* does not assume any liability for advertiser's claims.

Take a Close Look at the Master-3A



MASTER-3A

The first thing you notice about the Master 3A is its incredibly small size. But look closer and you'll discover that it's loaded with these great features:

- Fully compatible with the Amiga®
- Full 1 Year Warranty
- Pass through connector lets you easily add additional drives
- Extra long shielded input cable (28″) allows easy placement on either side of the computer
- Extremely quiet operation
- Double sided/double density 720 KB formatted capacity
- Durable metal case eliminates radio frequency interference and drive noise
- Spring loaded door keeps out dust
- Consumes less power
- Smaller, slimmer design (4″w × 1¼″h × 9″d)
- Costs less to buy

For an even closer look at the Amiga compatible Master 3A, phone your nearest dealer:

S.C.I. 800-548-9669	Computer Direct 312-382-5050
M.C.S. 800-433-7756	E.C.I. 800-356-5178

Manufactured by Oceanic America P.O. Box 70587, Eugene, OR / 503-741-1222 / Fax 503-741-1535 / **DEALER INQUIRIES INVITED**

Circle 117 on Reader Service card.

PHOTON VIDEO

Cell Animator



PROFESSIONAL ANIMATION! —

Now take advantage of "pencil testing" your animation in the privacy of your own home studio! With Cel Animator you can preview scenes, polish your work and know it performs the way you envisioned.

UN-EQUALLED VERSATILITY—

Cel Animator provides versatility that's unavailable with film, or the expensive Lyon-Lamb type stop-motion video tape equipment. With Cel Animator, your drawings are stored on a computer disk so each frame can be called up repeatedly and manipulated within a sequence after being "shot" only once. This is achieved because computer disk storage is "random access," meaning; any information stored on the disk can be called up at random, in whatever order required, as often as necessary!

BREAK THE "SEQUENTIAL" DILEMMA —

Tape and film are "sequential" and require you to shoot a "cycle" over and over again until the required number of repetitions are completed, or re-expose a held drawing for many consecutive frames. Using Cel Animator, however, you may simply create each drawing once, and then create a list, identifying each frame by number, and the program will call up the stored frame from memory and replay it as often as it is called for, or in whatever order you specify, and you can add or delete drawings. Essentially, the program follows your "exposure sheet" for you!

You can also experiment with your timing by simply changing the display time between frames; if you shoot a "pose test" you can adjust your timing repeatedly without reshooting anything, then add your breakdowns, re-time your delays and check again. No need to add in-betweens until you've fine-tuned your pose test.

CONTINUOUS PLAY OPTION—

The program can also replay your sequence of frames in a continuous loop, so you can sit back and review the action repeatedly without having to rewind and play a video tape over and over again, or without ever having to wait for film to be shot, processed, and edited.

SOUND SYNCHRONIZATION—

Cel Animator allows you to digitize your pre-recorded sound track (dialogue, music or effects), and replay them frame by frame; or select any group of frames to replay, enabling you to locate and identify sounds according to frame number prior to doing your animation drawings. Then, review your pose test or completed animation synchronized with your digitized sound track, and you can then print an exposure sheet, vowels and consonants paired with frame numbers.

INTRODUCE COLOR! —

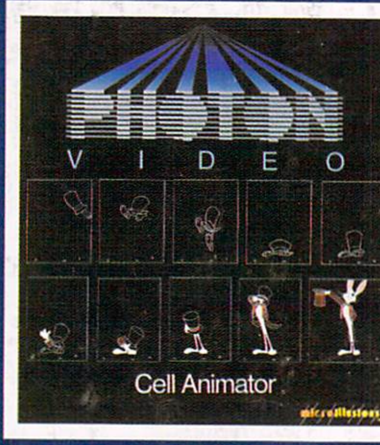
Finally, if you own one of the many paint programs available such as Photon Paint, you can paint your pencil drawings right on your computer, and use Cel Animator to replay them in full color, over any background you create. It is also possible to send your completed color scenes to video tape; thus producing a full color animated sequence right in your own home on your VCR or you can use Photon Video's Transport Controller software.

COMPATIBILITY —

Photon Video Products are fully compatible with most third party art, animation and rendering software systems.

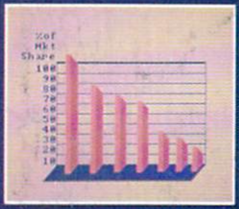
TRANSPORT CONTROLLER —

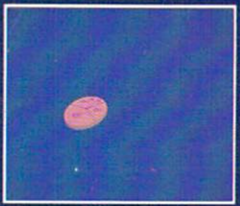
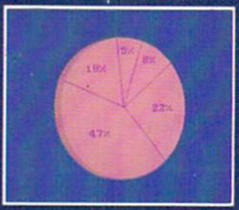
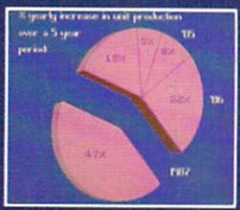
This module allows you to take your animations frame by frame to video tape, by way of popular frame by frame controllers such as Lyon Lamb.™



OTHER PHOTON VIDEO PRODUCTS —

- EDIT 3D, Photon's powerful solid object Editor.
- RENDER 3D, Photon's amazing solid object rendering system.
- Photon Paint, this immense paint system gives you all you are accustomed to in a professional paint box, plus many advanced features like surface mapping and light source control!








microillusions™

17408 Chatsworth St., Granada Hills, CA 91344 Inside CA 818/360-3715, Outside CA 800/522-2041

12-109